

234 d 24

A
PLAIN AND EASY
INTRODUCTION
TO THE
KNOWLEDGE AND PRACTICE
OF
GARDENING,
WITH
HINTS
ON
FISH-PONDS.

BY
CHARLES MARSHALL,
VICAR OF BRIXWORTH, NORTHAMPTONSHIRE.

God Almighty first planted a *Garden*, and indeed it is the purest of
human Pleasures: It is the greatest Refreshment to the
Spirits of Man; without which, Buildings and
Palaces are but gross handy Works.

BACON'S ESSAYS.

THE THIRD EDITION,
CONSIDERABLY ENLARGED AND IMPROVED.

PRINTED FOR F. AND C. RIVINGTON, N^o 62, ST. PAUL'S
CHURCH-YARD, LONDON;

BY EYE AND LAW, ST. JOHN'S-SQUARE, CLERKENWEL.

1800.



TO
THE REVEREND
WILLIAM TALBOT, M.A.
CHANCELLOR
OF THE
CHURCH OF SARUM,

THIS
INTRODUCTION TO GARDENING,

IN ACKNOWLEDGEMENT
OF MANY AND GREAT FAVOURS, IS,
WITH THE SINCEREST RESPECT AND GRATITUDE,
INSCRIBED,

BY HIS MUCH OBLIGED,

AND FAITHFUL SERVANT,

THE AUTHOR.

PREFACE.

CONSIDERING the several well-received Books extant on the subject of GARDENING, the Author of this feels himself flattered, that it has so soon come to a Third Edition; and he has (with zeal) embraced the opportunity of making every Improvement in his power, to render it still more acceptable to the Public, and trusts to have served the Cause of Gardening in a way that demonstrates his attention and industry in so favorite a pursuit. He has concentrated information with no little pains (particularly in the Lists and Calendar) and hopes that the Work may be found useful to all who consult it. For the Young Gardener, however, it is chiefly designed, and meant to be his easy Introduction to the Art,—his plain and sure Guide.

“Hints on the Method of managing POND-FISH,” inserted at the close of the Book, are written “by a Member of the Imperial free Agricultural Society at St. Petersburg,”—a very respectable Literary Character, to whom Mr. M. is much obliged by the communication. The breeding, feeding, and preserving Fish is a part of Rural Economics too little attended to, so that this Paper will serve at once to recommend, and instruct on the subject, those who may be disposed to make experiment in it.

CONTENTS.

SECTION I.

PRAISE OF GARDENING.

ITS worthy nature, page 1. Testimonies in favour of it, by Lord Bacon, Mr. Cowley, 2. Anonymous, Mr. Evelyn, Mr. Addison, 4. Mr. Harvey, 5. Mr. Cowper, Sir William Temple, 6. Le Pluche, Virgil and Mr. Cowley, 7.

SECTION II.

CONCERNING VEGETATION.

Of earth, 8. Of water, 9. Of air, 10. Of fire, 11. Of light, 12. Of nature; of seeds, 14. Of plants, 17. Of roots; of stems; of leaves, 18. Of branches: of buds, 20. Of flowers, 21. Flora's festival, 23. Of atheism, 24.

SECTION III.

OF THE FORMATION OF A GARDEN.

In general, 25. Of size; of situation, 26. Of screens; of form, 27. Of the soil; of best fruit wall, 28. Of its border; of intersecting walls, 29. Of wall trees; of distances, 30. Of intermediate spaces; of plums, cherries, and pears as wall-fruit, 31. Of apples and mulberries as ditto. Of evergreen hedges; of gravel walks, 32. Of edgings, 34. Of grass walks and others; of standard trees, 35. Of dwarf standards and espalier trees, 36. Of distances; of standard apricots, 37. Of currants, gooseberries, raspberries, and strawberries, 38. Of shrubs, asparagus, artichokes, and herb-beds, 40. Of flowers, and water, 41. Of mixed gardening; of a flower garden and parterres, 41, 42. Of an orchard, 43.

SECTION IV.

OF THE CULTIVATION OF A GARDEN.

What it is, 45. Of trenching and manuring, 46. Of cropping, 47. Of weeding, earthing up, digging, and of thinning crops, 49. Of pricking and planting out; of over cropping, of dibble planting, and of watering, 50. Of shading; of plants requiring water, and of watering wall-trees, 51. Of the quality of water, 52. Of management in general, 53; and particulars, 54, &c.

SECTION V.

OF PROPAGATION.

Of good seed, 57. Of new and old seed, 58. Of saving seed, 59. Of preparing seeds, and season for sowing, 60, &c. Of succession crops, and of sowing on fresh ground, 61. Of the depth to sow at, and quantity to be sown, 62. Of covering seeds, of patches, of thinning, and of propagation by suckers, 64. By slips, offsets, and division, 65. By cuttings and layers, 66, &c.

SECTION VI.

OF A NURSERY.

Its uses, 69, &c. Of the soil, &c. 70. Of fruit-stocks, 70, 72, 73. Of tree seeds and sowing, 71. Of management, 72. Of protection, and of planting out seedlings, 73. Of raising apple trees, 73. Of pear, plum, cherry, fig, and quince, 74. Of mulberry, medlar, grape, and chestnut, 75. Of walnut, filberd, currant, gooseberry and berry, 76. Of raspberry and strawberry, 77. Of raising forest-trees, and of good seed, 78. Of management, 79, 72.

SECTION VII.

OF GRAFTING.

Nature of, 79. Of skill in performing, 80. Tools for the work, and of heading stocks, 81. Of scions, 82. Of cutting

cutting cions, time of grafting, and of cleft-grafting, 83. Of whip-grafting, and of slicing, 85. Of bark-grafting, 86. Of side-grafting, 87. Of approach-grafting, or inarching, 88. Of budding, or inoculation, 89, &c. Fruits usually budded, and of proper stocks, 90. Method of budding, 91, &c. Of buds that have taken, 93. Of beheading the stock, and observations on the whole, 94.

SECTION VIII.

OF PLANTING.

Choice of plants, 96. Act of planting, 97, &c. Of protecting roots, 98. Of watering and staking, 100. Of late planting; and of the soil in general, 101, &c. Of the soil which suits each sort of fruit, 103. Of situation, 104, &c. Of season for planting, 106. Advice on the whole, 106.

SECTION IX.

OF SHRUBS, SHRUBBERIES, &c.

Value of shrubs; of raising them; times for planting deciduous and evergreen sorts, 117, &c. Of preparing the ground, 108. Of the act of planting shrubs; their disposition, distance, and situation, 109, &c. Of flowers for shrubby borders, 110. Management of shrubberies; of hedges, or divisions, 111. Of covering old walls, 112.

SECTION X.

OF FOREST TREES.

Planting them recommended, 112, &c. Of the method of doing it, and preparing the ground, 114. Of under-wood; of distances for timber trees, 115. Of plantations, single trees, and avenues, 116. Of season for planting; size of trees; act of planting and fencing, 117. Of dressing and thinning; of ornamental trees, 118.

SECTION

SECTION XI.

OF RURAL GARDENING.

Recommended, 119. Advice about; works of art, 120, 127. Hints to be attended to, 121, &c. Inclosure for exotics; of walks, 122. Of flowery decorations; of the introduction of water; of anticipation, 123. Shenstone on rural elegance, 124. Ornamental gardening; means of affecting it, 126, &c.

SECTION XII.

OF PRUNING.

Wall trees require skill, the obtaining which recommended, 129. Of their proper form; of heading young ones down, 130. Method of training, 134, &c. Of regulating trees in summer, and of nails and shreds, 133. Of the hammer and of trellises, 134. Constant attention necessary; of their health, 135. Causes of injury, and means of benefit pointed out, 136, &c. Of their fruitfulness, how to provide for, 139. Of thinning the branches, 140. Mode of bearing; of shortening shoots, 141. Of furnishing wood, 142. Time for winter pruning, 143. Apricot, particulars of, 143. Re-pruning and frequent training, 144. To preserve blossoms, 145. Of thinning the fruit, 146. Of gathering it and its dropping, 147. Of pruning vines, 147, &c. Of figs, 151. Of pears, 153, &c. Of apples, 156. Of mulberries, and of cherries, 157. Of plums; of filberds, 158. Of currants and gooseberries, 159.—Thus far as to wall-fruit. Of pruning espalier trees, and of heading young ones down, 160. Of standard sorts, 161. Of moss on trees, 162. Of pruning shrubs; raspberries, 164. Berberry; strawberry, 165. General directions for pruning flowering shrubs, 166. Particulars for the rose, honeysuckle, sweet-briar, and lilac, 168. Laburnum, jasmine, fenna, syringas, hypericum frutex, spirea frutex, gueldre rose, and pyracantha, 168.—Forest trees for pruning, see section X.

SECTION

SECTION XIII.

OF HOT-BEDS.

Their use and nature, 169. Errors to be avoided; place proper for them; working the dung, 170. Dung-hills, care of; size of beds, 171. Of moulding it; substitutes for horse dung, 172. Method of making a bed; quality of the dung; of unsoiled straw-beds; of grass-beds, &c. 173. Of bark-beds: to increase the heat of a bed, 174; to decrease the heat; uses for which hot-beds may be made, 175.

SECTION XIV.

OF RAISING CUCUMBERS AND MELONS.

Early crop of cucumbers, and time to begin, 176. Of the bed and of moulding it, 177. Of sowing, and to be repeated, 178. Of pricking-out, and particulars of management, 179, &c. Of burning, 181, 183, 185, 186. Of watering, 180. Of a second bed, and of steaming, 181. Of covering, 182. Of stopping the plants; of the fruit-bed; of earthing it, 183. Of planting, 184. Of shifting potted plants, 184. Of management in general, 185, &c. Setting the fruit, 187. Of pruning, and of second crop, 188. Of third crop, 190. Of saving seed, 191. Of melons; time to sow, &c. and of the seed, 192. Of sowing, airing, &c. 193. Of second bed; of third bed for fruiting; and of soil proper, 194. Of planting, pruning and training, 195. Of moulding up; of general management, &c. 196. Of watering, and of ripe fruit, 203. Of second crop, 198. Of paper lights, 199. Of third crop, 200.

SECTION XV.

OF ESCULENTS.

Their usefulness, 200. When to gather them; culture of alexander; artichoke, 201. Asparagus, 203. Bean,

Bean, 206. Beet, 208. Boorcole, 209. Brocoli and Brussel sprout, 210. Cabbage, 211. Red cabbage, 212. Carrot, 212. Cauliflower, 214. Celery, 216. Celeriac; chardón, and chou de milan, 218. Colewort and cucumber, 219. Endive, 220. Garlick; gourd; and horse-radish, 221. Jerusalem artichoke; kidney bean, 222. Leek, 225. Lettuce, 226. Melon; Onion, 228. Parsley, parsnep, and pea, 230. Potatoe, 233. Pumpkin, 237. Radish, 238. Salsafy, 240. Savoy; scorzonera; and sea cale, 241. Shalot; skirret; spinach, 243. Turnep, 244. French turnep; turnep cabbage, 245.

SECTION XVI.

OF HERBS, &c.

Culture of angelica; balm, 246. Basil; borage; bugloss; burnet, 247. Camomile; capficum; carraway; carduus benedictus; chervil; cives, 248. Clary; coriander; corn sallad; cress, 249. Dill; fennel; finocchio, 250. Hyssop; lavender, 251. Marigold; marjoram; mint, 252. Mustard; nasturtium, 253. Parsley; pennyroyal, 254. Purslane; rape; rampion; rocambole, 255. Rosemary; rue; sage; samphire, 256. Savory; smal-lage; scurvy-grass; sorrel, 257. Succory; tansey; tar-ragon; thyme, 251. Tomatum; Wormwood, 259.

SECTION XVII.

OF FRUITS.

Variety of sorts, and difference in those of the same name, 260. Confusion in names; choice directed, 261. Care in planting, and of apples, 262. Of the apricot and berry, 263. Cornel; cherry; chefnut; currant; fig; filberd; gooseberry, 264. Grape; medlar; mulberry, 265. Nectarine; peach; pear, 266. Of gathering pears, and keeping them, 267. Plum; quince, 268. Raspberry; service; strawberry; walnut, 269.

SECTION

SECTION XVIII.

OF FLOWERS.

Of the classes, annuals, biennials and perennials, 270. Praise of flowers, 271. Of annuals in general, &c. 272. Culture of tender annuals, 273, &c. Of scoop-trowels and watering pots; of potting plants, 276. Of watering them, 277. Of potting hardy flowers; second sowing of tender annuals, 278. Of sowing the less tender sorts, 279. &c. Of the hardy kinds, 280. Second sowing of hardy annuals, 282. Culture of biennials, 282. Of perennials, 283. The Dutch famous for producing new flowers. Directions for raising bulbous and tuberous roots, 284. Of raising fibrous rooted sorts; general culture of bulbous and tuberous roots, 285. Of offsets; seasons for planting different sorts, 286. Soil suitable, and depth at which to plant, 287. Disposition, distances and management, 288, &c. Of forwarding spring-bulbs in water glasses, &c. Of stalk bulbs, 289. Of saving seed. Bulbs are yearly renewed. Propagation of flowering shrubs, 290. Of American sorts. Particular use of the hand-glass, 291. A useful observation, 292.

SECTION XIX.

LISTS OF TREES, SHRUBS, AND FLOWERS.

Concerning them, 292. Time of flowering, colours, names, 293. Sorts; list of forest-trees, 294. Observations on ditto, 295. List of large deciduous ornamental trees, 297. Observations on ditto, 299. List of smaller deciduous ornamental trees, or large shrubs, 300. Observations on ditto, 302. List of the lowest deciduous trees, or shrubs, 303. Observations on ditto, 306. List of evergreen trees, 309. Observations on ditto, 311. List of evergreen shrubs, 312. Observations on ditto, 314. List of flowers—tender annuals, 316. Observations on ditto, 317. Less tender annuals, 320. Observations on ditto, 321. Hardy annuals, 325. Observations on ditto, 327. List of biennial flowers, 329. Observations on ditto, 330. List of fibrous

fibrous rooted perennials, 333. Observations on ditto, 339.
 List of bulbous, tuberous, and fleshy rooted perennials, 349.
 Observations on ditto, 352. Detached articles—auricula,
 357. Carnation, 359. Geranium, 361. Pinks, 364.
 Polyanthus, 365. Tuberoſe, 366.

SECTION XX.

A CALENDAR.

Of the general work of gardening, 368. January, the
 particular work of, 369. February, 371. March, 373.
 April 376. May, 379. June, 381. July, 384. August,
 387. September, 390. October, 392. November, 395.
 December, 398. Cloſe, 400.

Hints on the Method of managing Pond-Fiſh, 403.
 Eſſay on the Profeſſion of a Gardener, 406.

* * The neceſſity of a particular *Index* is precluded by
 the above table of *contents*, and the work being ſo much in
 the *alphabetical form*.

SECTION I.

THE PRAISE OF GARDENING.

IT is of importance to the welfare of any *art*, that those whose taste inclines towards it, should have a good opinion of its *utility*, and competent notions of its *principles*. It is therefore the design of the present section, to shew the degree of *estimation* that the art of *Gardening* is worthy of; and it is the object of the next, to assist in the acquiring that knowledge of *Nature*, upon which the art so much depends.

Not to enlarge upon the *profits* of gardening, its employments are certainly conducive to health of body, and peace of mind; and great indeed are the *charms* and recreations of a *garden* well stocked, and well managed by the hand, or under the direction of the *owner* himself: It at all times serves him as a source of rational amusement, and honest satisfaction.

The *praise of gardening*, it is presumed, can hardly be too highly extolled; and, as this has been so well done by the best of men, and most respectable of writers, it may better answer the present purpose to produce *their* sentiments, than to attempt new ones.

What we admire, we praise; and when we praise,
Advance it into notice, that its worth
Acknowledged, others may admire it too.

COWPER.

The great Lord *Bacon's* opinion of gardening, given in the motto of the title page, is certainly both just and honourable. The agreeable *Cowley* speaks of his darling *nature* as enjoyed in a garden, thus :

When God did man to his own likeness make,
As much as clay, tho' of the purest kind,
(By the great potter's art refin'd)
Could the divine impression take,
He thought it fit to place him, where
A kind of heaven too did appear,
As far as earth could such a likeness bear ;
That man no happiness might want,
Which earth to her first master could afford ;
He did a garden for him plant,
By the quick hand of his omnipotent word ;
As the chief help and joy of human life,
He gave him the first gift,—even before a wife.

And well he knew, what place would best agree,
With INNOCENCE and with FELICITY.
And we elsewhere still seek for them in vain,
If any part of either yet remain.
If any part of either we expect
This may our judgment in the search direct ;
God the first garden made, and the first city,—*Cain*.

When *Epicurus* to the world had taught
That pleasure was the chiefest good,
(And was perhaps i'th'right, if rightly understood)
His life he to his doctrine brought,
And in a garden's shade, that sovereign pleasure
sought.

Whoever a true epicure would be,
May there find cheap and virtuous luxury.

Nor does this happy place only dispense
Such various pleasures to the sense,
Here *health* itself does live
That salt of life, which does to all a relish give,

Its standing pleasure, and intrinsic worth,
The body's virtue, and the soul's good fortune,
health.

Methinks I see great *Dioclesian* walk
In the *Salonian* garden's noble shade,
Which by his own imperial hands was made :
I see him smile, methinks, as he does talk
With the ambassador, who came in vain
T'entice him to a *throne* again :
If I, my friends, said he, should to you show
All the delights which in these gardens grow,
'Tis likelier much that you should with me stay,
Than 'tis that you should carry me away :
And trust me not, my friends, if every day
I walk not here with more delight
Than ever after the most happy sight,
In triumph to the capitol I rod,
To thank the Gods, and to be thought myself a God.

Mr. *Cowley's* passion for retirement was indeed *very*
strong ; but might he not well say, " Is there not a
cause ? " He had been conversant in high and public
life, and was very glad to leave

Those dangerous posts, where customs ill agree
With virtuous rules, or sound philosophy.

As one reason for his going out from *Sodom* (as he
speaks) to his little *Zoar*, he asks,

Who that has reason and his smell,
Would not among roses and jasmín dwell,
Rather than all his spirits choak
With exhalations of dirt and smoak ;
And all th' uncleanness which does drown
In pestilential clouds a populous town.

Another poet (*Clericus*) retiring from town to a cot-
tage and a garden, says,

I strait betook myself to trace the laws
 Of *nature*, upwards to its fruitful cause ;
 And, digging mines of true philosophy,
 The mystic stone I found, whose energy
 Apply'd, transmutes some matter, some sublimes,
 Drawing within my circle *golden times*.

Often amused with feats of *gardening*,
 Delightful exercise, I work and sing !
 And moving chearful feel not half my toil,
 Like swains that whistle, while they plough the soil.
 Should any disbelieve, I here invite
 Such infidels to come, and trust their sight.

—Uncorrupt and happy days were those
 When *Roman Consuls* exercised their hoes ;
 Whose leisure hours in country cares were spent,
 And whose diversions all were innocent.
 Oft their own labours furnish'd out their feast,
 And thus their fruits and fallads relish'd best.

ART OF GARDENING.

* * * * *

Mr. *Evelyn*, who had so great knowledge and experience in the way of gardening, speaks its praise in these words : Though the gardener's life be a laborious one, yet is it full of tranquillity and satisfaction. A condition furnished with the most innocent, laudable and purest of earthly felicities ; and such as does certainly make the nearest approaches to that blessed state, where only they enjoy all things without pains.

* * * * *

Mr. *Addison* says, I look upon the pleasure which we take in a garden, as one of the most innocent delights of human life. A garden was the habitation of our first parents before the fall. It is naturally apt to fill the mind with calmness and tranquillity, and to lay
 all

all its turbulent passions at rest. It gives a great insight into the contrivance and wisdom of providence; and suggests innumerable subjects for meditation.

* * * * *

Mr. *Hervey*, in his *Meditations*, on return from a walk, having entered the *flower garden*, and called it a beautiful spot, says, "Here nature always pleasing, every where lovely, appears with *peculiar* attractions. Yonder she seems dressed in her *deshabille*; grand, but irregular. Here she calls in her hand-maid art; and shines in all the delicate ornaments, that the nicest cultivation can convey. *Those* are her *common apartments* where she lodges her ordinary guests: *This* is her *cabinet of curiosities*, where she entertains her intimate acquaintance. My eye shall often expatiate over those scenes of universal fertility: My feet shall sometimes brush through the thicker, or traverse the lawn, or stroll along the forest glade; but to *this* delightful retreat shall be my chief resort.—Thither will I make excursions, but here will I dwell."

On the *Kitchen Garden* Mr. H. observes, "Here those celebrated qualities are eminently united,—the utmost simplicity with the greatest neatness: none of the productions affect finery. If it be pleasing to behold their orderly situations, and their modest beauties; how delightful to consider the advantages they yield! What a fund of choice accommodations here! What a source of wholesome dainties, and all for the enjoyment of man! Not one species of all this is a cumberer of the ground. Not a single plant but is good for food, or some way salutary. And with so beneficent an economy are the several periods of their ministration settled, that no portion of the year is left destitute of such nourishing esculents as are best suited to the temperature of the air, and the state of our bodies.—On! why should the possessor of so valuable a spot envy the condition of kings? Since he may
B 3
daily

daily walk amidst rows of peaceable and obsequious subjects; every one of which tenders him some agreeable present, and pays him a willing tribute. Such as is most excellently adapted, both to supply his wants, and regale his taste; to furnish him at once with both plenty and pleasure."

From the amiable *Cowper* something on this subject may be added. See the *garden*; in his Poem, entitled the TASK.

O friendly to the best pursuits of man,
Friendly to thought, to virtue and to peace,
Domestic life in rural leisure pass'd.

Scenes formed for contemplation, and to nurse
The growing seeds of wisdom; that suggest,
By every pleasing image they present,
Reflections such as meliorate the heart,
Compose the passions, and exalt the mind.

Oh! blest seclusion from a jarring world,
Which he, thus occupied, enjoys! Retreat
Cannot indeed to guilty man restore
Lost innocence, or cancel follies past,
But it has peace, and much secures the mind
From all assaults of evil, proving still
A faithful barrier, not o'erleap'd with ease,
By vicious custom raging uncontroul'd
Abroad, and desolating public life.

The morning finds the self-sequester'd man,
Fresh for his task, intend what task he may.
—If the *garden* with its many cares,
All well repaid, demand him, he attends
The welcome call.
Had I the choice of sublunary good,
What could I wish, that I possess not here?

Sir William Temple commended the employment and care of a *garden* as his settled choice, saying,—
For my own part, as the country life, and this part of it

it more particularly, were the inclination of my youth itself, so they are the pleasures of my age.

Le Pluche justly asserts,—Of all the employments in life, none is more simple, natural, and entertaining, than the cultivation of plants.

Virgil of old, describes the happiness of a cultivator of the ground in gardening and planting, as equalling all the opulence of kings, in the ease, content, and freedom of his mind. This is one of the most assured truths; and happy are they who are free from the entanglements of artificial life, and not over-burthened with honour and greatness.

Gardening leads to planting and farming, of which, collectively, *Mr. Cowley* prettily speaks.—It is one of the best-natured delights of all others, for a man to look about him, and see nothing but the effects and improvements of his own art and diligence; to be always gathering of some fruits of it, and at the same time to behold others ripening, and others budding; to see all his fields and gardens covered with the beautiful creatures of his own industry; and to see, like *God*, that all his works are good.

Of a country life in general, *Mr. C.* says, “We are here among the vast and noble scenes of nature; where we walk in the light and open ways of the divine bounty, and where our senses are feasted with the clear and genuine taste of their objects.”

SECTION II.

CONCERNING VEGETATION.

AS a good GARDEN affords much *pleasure* and *profit*, it deserves every attention; and certainly the cultivation of it cannot be too *rationally* pursued. It is therefore that a sketch of the *Nature of Vegetation* is here attempted; for the use of those who are unacquainted with the subject to assist them in the pursuit of gardening with understanding.

Let the ELEMENTS be first considered.

EARTH, as an element, considered in itself, appears not to serve to the support of man or beast. Though from it all things spring as from a common womb; yet independent of the other elements, or extraneous matter, it neither produces, nor affords, any thing like food. Assisted however by these, there is a combination of powers, the effects of which are equally beneficial and wonderful.

It has been pretty much an opinion, that the *earth* acts only as a *receptacle* for nutriment; and as a resting place, or means of supporting plants erectly; to imbibe rain, dews, air, &c. needing continually to be replenished by manures, or from the atmosphere. Indeed, it is not to be conceived, how the earth, considered as a solid, should pass through the capillary parts of plants. Experiments have proved, that the earth is very little, if at all exhausted, by the growth of plants, and consequently affords a presumption that plants are not fed by it.

There

There has been much controversy about the *food* of plants. A respectable writer says, The saline, unctuous, and subtle slime, which the water separates from the coarse earth, and keeps in a dissolved state, is the principal nutriment of plants. And indeed, this is the opinion of others, who have treated the subject, and is justified by enquiries into the nature of the sap of plants, by decomposition :

Those who contend for an *inherent* power in earth to nourish plants, lay a stress upon the circumstance, that various earths have various qualities, suited to different parts. But to this it may be said, that the earth being more or less binding, or composed of differently constructed particles, occasions the parting with the food committed to it, the more or less freely, or altered according to its various modes of percolation, or straining.

* * * * *

WATER appears to have much to do in the subsistence of plants, for they consume a great deal ; and either die, or are at a stand, when they are deprived of it, or at least of humidity from the air. It is proved, that seeds and plants, and in short all substances, consist chiefly of water, being reducible to liquids in a great degree. Thus some ancient philosophers maintained, that all things have their nourishment and growth from water.

Water (with respect to vegetation) has been defined to be, a mixed fluid, in which are all sorts of particles proper for the composition of plants. But though seeds will germinate in water, they will not proceed to grow in it. Rooted trees however have been set in water at the spring, (as a rose) and put forth leaves fair, though pale ; and it is well known, that many slips and branches of plants will strike root in water readily : and gathered flowers not only keep fresh in it, but increase in size, and buds also open.

The natural state of water uninfluenced by heat is ice, and when very cold, it is too dense a fluid to pass through some of the capillary vessels of plants; yet a small degree of heat rarifies it; and as its globules are capable of being infinitely divided by a proportionate heat; it is thus rendered fit to pass through the finest canals. It mixes with the nutritive properties that are lodged in the earth, and is (at least) the *vehicle* of the food of plants. In this respect alone, it is most valuable. Without it, nothing could be elaborated in nature, no fermentation be wrought, and animals and plants would die of thirst!

* * * * *

AIR is found in a considerable degree in water, in plants, and in fruits. It may be almost demonstrated (says one) that the vegetable nourishment is principally in the air: The tree *Sedum* lives and grows for years without earth or water.

How *necessary* this element of air is to *man*, the commonest observation evinces. Deprived of air, life is quickly lost, and in a depraved state of it, runs fast to sickness and death. Thus *plants* are found to flourish in a free and open air, and grow pale and languish in the contrary. But air is not only necessary for the *leaves* of plants to breathe in, but their *roots* require it: Plants will not do well if the soil is too much bound for the *air* to penetrate freely about them.

The sickliness of *housed* plants has been said to be owing greatly to want of *motion*. But the want of fresh air, is undoubtedly the chief cause; for pure air is fraught with animating principles, and by its attenuating and elastic properties, separates the gross juices, keeps the sap in motion, and the plants in health.

Air conveys to the organs of smelling, all those grateful scents, which plants, flowers and fruits produce, and we are greatly regaled, and refreshed by them.

If

If it be asked, what *air* is, and of what it consists? It may be answered, Particles of wet and dry bodies volatilized, and rendered elastic by fire. The air or atmosphere that surrounds our earth, contains a mixture of all the active volatile parts of the whole habitable world; that is, of all vegetables, minerals and animals. Whatever perspires, corrupts or exhales, impregnates the air; which, being acted upon by the solar fire, produces within itself, all sorts of chemical operations, dispenses again those salts and spirits in new generations, which it had received from putrefactions.

* * * * *

FIRE, as it operates from the prime body of it the SUN, gives life and energy to all, completing the process of nature. There is no existing without it. Its total absence would presently bring all animation to the coldness of death!

The *sun* by its warmth (conveyed by the air) sets forward that *fermentation* in the earth, and gives that spirit to plants, which effects growth, and concocts their juices to make them fruitful.

It is by the *rarefaction* of the air and juices contained in the roots, and all the parts of a plant, that motion and expansion are given to it; and by its ascending force, pushes into buds, leaves, flowers and fruits; sending off superfluous and excrementitious moisture into the atmosphere, thus giving us the *scents* peculiar to each. That the *sun* does this, is evident from what is experienced in *artificial warmth*, hurrying on the growth of plants, which is ever proportionate to the heat applied, provided there is a proper supply of moisture.

Without the vivifying *sun*, the other elements would be inactive matter, and “*no longer would the fig-tree blossom, nor fruit be in the vine: The labour of the olive would fail, and the fields yield no meat.*” The operative power of the *sun* reaches the deepest recesses, to beds

of metals, and to "*the place of sapphires; and there is nothing hid from the heat thereof.*"

What blessings does this bounteous planet pour
On the glad heart of man, when rolling round
His azure road, he scatters as he flies,
'To warm his raptur'd bosom, *light and joy!*

NEWCOMB.

The SUN is the fountain of LIGHT. This glorious object of creation, as a *luminary*, gives cheerfulness both in nature and appearance to all things: If light is not so necessary to existence as heat, life would yet be miserable without it.

As to *vegetation*, we may observe, without *light* plants get always sickly, and would not exist long if deprived of it. Light, philosophically considered, is half their nourishment. All plants turn to the light as to a powerful attraction, or, as if conscious how necessary it is to their existence. Light at the same time that it heats, doth wonderfully rarify and raise the sap. It is the same with *Æther*, and it so mixes with other bodies, as to enter into their composition, and encrease their weight. The aromatic flavour of vegetables seems to depend upon the sun's light as much as colours do.

The physical properties of that *etherial* substance, which is so subtle and pervading as *light*, we may well believe to be various and wonderful, though inconceivable.

Behold the *light* emitted from the sun,
What more familiar, and what more unknown?
While by its spreading radiance it reveals
All nature's face, it still itself conceals.
How swift th' effulgent emanations fly
Thro' the blue gulph of interposing sky!
Millions of miles, so rapid is their race
To cheer the earth, they in *few moments* pass.

Amazing

Amazing progress! at its utmost stretch,
What human mind can this swift motion reach?

BLACKMORE.

How impressively are we taught to value the blessing of *light*, by a view of *day-break* in a fine summer's morn!

—————The hour of morn returns,
Unbars the gates of *light*, and opens wide
A prospect to the eye, which now unfolds
Ten thousand beauteous scenes which lay conceal'd
Before in darkness: now the radiant heavens
Glitter with azure pav'd, with roses strew'd.
With lively verdure each green plain array'd,
Each flower puts on a glow of richest hue;
The wide creation now is seen adorned
In all her rich attire and beauties bloom,
View'd by each wand'ring eye with raptur'd joy!
All the rich pomp which theatres display
Their shining ornaments, the lustres hung
In the proud courts and palaces of kings,
Lose their diminished light, and die away,
Whene'er the *sun* unfolds his radiant beams!

NEWCOMB.

From this view of the *elements* it appears, that their offices are mutual, and that there is a *harmony* of them, necessary to the welfare of plants, in a view to which *art* may sometimes assist nature. It is for this end that what is said of them here is advanced, that the young gardener may convert to use his entertainment.

* * * * *

Having seen a little into the nature of the ELEMENTS, as they relate to the existence of plants, let us proceed to consider the *plants themselves*. Their structure has been examined by the greatest geniuses, and though able, (perhaps) to *determine* little of Nature's

ture's laws, yet has the pleasure and satisfaction they have reaped repaid them their trouble. Though after all our researches, we are finally led to this conclusion, that God's works, like his ways, are "past finding out;" yet if there is any satisfaction in knowledge, or any consolation in piety, these gratifications are to be sought in, and will be reaped from attentive and modest enquiries into Nature. "*The works of the Lord are great, sought out of all them that have pleasure therein.*"

Nature is nothing but the art of God; a bright display of that wisdom, which demands an eternal tribute of wonder and worship.

The notions which arise from *Nature's* light
 As well adorn the mind as guide her right,
 Enlarge her compass, and improve her sight. }
 These ne'er the breast with vain ambition fire,
 But banish pride, and modest thoughts inspire.
 By her informed we blest *religion* learn,
 Its glorious OBJECT by her aid discern.
 The rolling worlds around us we survey,
 Th' alternate sov'reigns of the night and day;
 View the wide earth adorn'd with hills and woods,
 Rich in her herds, and fertile in her floods.
 Walk through the deep apartments of the main,
 Ascend the air to visit clouds and rain:
 And while we ravish'd gaze in *Nature's* face,
 Remark her order, and her motions trace.
 The long coherent chain of things we find
 Leads to a *cause* SUPREME, a wise *creating* mind.

BLACKMORE.

* * * * *

SEEDS of plants stand first to be considered, and they are truly wonderful. What large plants from seeds no bigger than a grain of sand? What a stately oak from a little acorn?

The

The seeds of *fern*, which by prolific heat,
Cheer'd and unfolded, form a plant so great;
Are less a thousand times than what the eye
Can unassisted by the tube descry.

BLACKMORE.

Seeds contain in *embryo* (or miniature) the plant they are to produce, in all its parts, which they have preserved from age to age, seeds producing plants, and plants seeds, &c.

They are covered with coats that are finely and closely wrought, the better to keep the moisture of the earth from coming in too suddenly upon the lobes, or the little plant, which might occasion their rotting, and we find that almost every sort of seed, by means of these coverings, must remain different lengths of time in the earth, before they begin to germinate. Some will not spring in the natural ground till the second year after they are buried, while others will begin to shoot in three days after sowing. This is owing to their requiring different degrees of moisture, heat and air, to make them germinate; i. e. bring them into a state of fermentation.

The *substance* of seeds appears to be spent first in feeding the radicle, and then in the nourishment of the two first, or *seed leaves*, which are commonly of a different size, shape and substance from the *proper* leaves of the plant: From between these comes a shoot bearing the *true* leaves. The *lobes* (or substance) of seed, consist of a farinous nutriment, adapted to the infant state of the plant, when softened and dissolved by the moisture of the earth, which extends and unfolds the young plant (or plumule) in the same manner, as the nourishing juice in the eggs of animals hatches their embryo. The seed leaves therefore contain a sugary juice, which is evident from insects so greedily biting them, and their pleasant taste in sallads, as those of *turnips*, *cabbages*, &c. They
are

are thick and succulent, calculated to imbibe air and moisture from the atmosphere, for the support of the tender plant, that might otherwise suffer by drought: for it must *proceed* in growth, or it would quickly die. When the radicle has struck downwards, the office of the seed is evidently to nourish these leaves, as is seen by the seed coming above the ground with them, exhausted of its substance—a mere shell sticking to the top of the leaves.

But some plants have no seed leaves properly so called, as *corn*; which has therefore been deemed by some, not strictly a seed, but a bud, or bulb.

It has been *doubted* whether all plants have seed, because *some* sorts have not been observed to produce it. To conclude that they have, is however more agreeable to the uniformity of the *divine* procedure, and altogether to reason.

Seed may be so small as not to be discerned with the help of convex glasses, as we know there are many not discernible without them; and with this minuteness, it may be extremely fugacious by its slight adhesion to the plant.

The *truth* is, God originally ordained that plants should proceed from seed, and they do, (*Gen.* i. 2.) It was long said, that *fern* bore no seed; but this is a demonstrable mistake. That *Mushrooms* produce seed, we need not doubt. Many of the *mosses* are so small in the state of plants, that the *microscope* only can discover their flowers, and even in some, the plants themselves are but barely thus discernible. A great variety of seeds are wafted about continually in the air, and produce their kind; whenever they light upon a proper matrix. Whatever has been objected there appears good ground for believing, that there is no natural production, either in the vegetable or animal kingdom, but what comes from the seed, or egg of some parent.

As

As to certain plants appearing where none were before, we know that some seeds will keep many years, when deep buried, and being afterwards brought to the surface, have vegetated, as the wild *mustard*, &c. Besides the *wind* carrying some sorts of seeds to a considerable distance, *birds* also drop a great many, so that plantations of *oaks*, &c. have sprung up by means of crows carrying the acorns, and dropping them in cracked ground.

PLANTS follow seed, and we find them proceeding in a steady unceasing progression towards maturity, to their destined end, i. e. production of the like, from which they sprung (seed) to preserve the species. And the *economy* of nature is so regular, that a certain portion of *time* is invariably kept (allowing for accidental circumstances) for this business. So certainly does Nature pursue her end in all respects, that the identical species is always preserved, as to the distinguishing properties of each, though the soils in which seeds are sown are so various. Altogether under the *same* circumstances are produced the sweet smelling flower, the nourishing corn, and the poisonous plant, though differing much in strength, in figure, and other particulars.

The *juices* in the vessels of plants undergo (according to their conformation) different fermentations, and thus become altered; in which chemistry of nature, its powers and results are wonderfully exact.

Peculiar pores peculiar juice receive.

To *this* deny, to *that* admittance give.

Hence various trees their various fruits produce,

Some for delightful taste, and some for use,

Hence sprouting plants enrich the plain and wood,

For physic some, and some design'd for food.

Hence fragrant flow'rs with different colours dy'd,

On smiling meads unfold their gaudy pride.

BLACKMORE.

The

The **ROOTS** of plants are to keep them fixed in the earth and to draw food from it; which they do (chiefly at least) by their *ends* which have been therefore called mouths: In general they affect an horizontal growth, for the benefit of the sun and air, and never descend above a certain depth from the surface.

By means of the *root*, nourishment proceeds through the pipes and capillary conduits of plants, continually from the earth, and by the action of the sun and air, circulates, rarifies, and distributes itself. This juicy food, swells the little bags, or cells (of which the substance of plants is composed) and following the different modifications thereof, filtrates athwart the parts. For example. That which is most pure and fine, serves to nourish the flowers and fruits; that which is not supplies the branches, and leaves, and roots; the most gross and earthy serves for the bark; and the most oily is for gum and rosin. Just the same as we find it in *animals*, where the food they receive into the stomach passes afterwards into the blood, circulates into the vessels, and pursuing its different degrees of attenuation, serves to nourish the different parts of the body.

The **STEMS** or trunks of plants are for the support of the head, and to convey juices from the roots upwards for the leaves, branches, &c. and are composed (as the roots) of bladders, and various conduits for air, sap, &c. perpendicular, spiral, and horizontal from the pith to the bark. These vessels may be somewhat seen with the naked eye, as in slices of the young shoots of *nut*, *apple tree*, and *wine*, but very evidently by a microscope. It is observable, that some plants which are weak and pipy have *knots* at proper distances to strengthen them, and others have *claspers* to hold them up; while others are robust enough in stem to brave the fury of a tempest.

The **LEAVES** of plants are very variously, but beautifully constructed in their form and substance; and if we consider them as attracting nourishment from

from the root and the atmosphere, and as perspiring and respiring, they are more than commonly thought, essential to vegetation; and so we find that if the stems, or branches of a plant, are considerably deprived of them, it becomes stunted and diseased, and if any fruit appear, it proceeds slowly in growth, and is ill flavoured. The *quantity* of nutriment which a plant derives from the earth, is in proportion to the number and size of its leaves; thus that they may uninterruptedly perform their offices, they are distributed in a very distinct and separate mode.

The *under* and *upper* part of leaves are different, and have separate offices; the under is rough and porous, as if adapted to imbibe the rising moisture of night dews; and the upper, or closer, to exclude the grosser parts of the atmosphere, and to imbibe some finer food, as to "draw the live ether." Thus leaves will not endure to be *reversed*, as is seen by the certain and quick return to their right position, when forced from it, and till this is effected, they perform not the proper functions of nature.

That the glossy *surface* of leaves have an intimate connection with the *light* is evident, as they rise and fall (in a degree, some plants more and others less) as the sun moves. If they are turned from the light they twist themselves towards it, as if they had enjoyment, and were *conscious* of the benefit.—The curious will meet with gratification relative to this subject, by consulting *Hill's Tract On the Sleep of Plants*; or his gardening for October:—a large folio.

One of the offices of leaves, seems to be, to subtilize, and give more spirit to the abundance of nourishing sap, and to convey it to the little *buds* at their foot *stalk*, to whose welfare they are essential.

If the *texture* of the leaves be scrutinized, they are found curiously ramified; the ribs and fibres of each seeming much like a spreading plant. The ramifications hold a close communication with each other;
so

so that the principal rib sends out lateral ones less strong, and they again an infinite number of fine ones in all directions; and these are vessels of two kinds, viz. for *sap* and *air*. As leaves throw off a great deal of excrementitious, so do they imbibe a great deal of nutritious moisture, as is evident from the general refreshments received from dews. Yet we are not to conclude, that the other parts of plants do not the same in a less degree; and the rough bark of the trees, and the outer vessels, are well calculated to detain moisture, to convey to other parts.

The BRANCHES of plants come next to be considered. How beautifully do they spread, and how uniformly do they proceed, keeping up precisely the same mode of growth, one from another throughout the whole; till the head of the plant, or tree, attains its customary size, and own peculiar form; which if it has grown with native liberty, proves always of an agreeable symmetry.

The texture of branches consists of the same kind of vessels as the stem, or trunk; but here it may be observed, that there is yet a specific difference in the vessels of the various parts, as is concluded from their affording juices of a different flavour and effluvia in the bark, wood, leaves, flowers and seeds; so that from the same plant are extracted medical properties of very contrary nature.

BUDS are like seeds, as they contain the future growth of branches and fruit in miniature, so that for instance, in the buds of a *currant-tree* may be discovered (by a microscope) even before winter, the woody branch, and the bunches of fruit. The future fruit also has been viewed in the bud of a *vine*. In the short buds of *pears*, which appear at *Midsummer*, an indifferent microscope will shew the blossoms designed for the *April* following. The buds of a *Mezerion* being examined at *Midsummer*, had the blossoms discovered

covered in them, though the time of their blow is not till *February*.

Thus it appears, that the leaves, blossoms, fruit, and branches, on all trees, are formed the year *before*; and so their fruitfulness in the year they bear, is no otherwise the consequence of *that* season, than that nature has gone without any destructive check in her progress, and particularly at the time of flowering, when many blossoms are destroyed by inclement weather, and by wet only as much as any thing.

* * * * *

The FLOWERS of plants have not yet been particularly noticed, but of them something must, and much might, be said.

Go, mark the matchless workings of the power
That shuts within the seed the future *flower*;
Bids these in elegance of form excel,
In colour these, and these delight the smell;
Sends nature forth, the daughter of the *skies*,
To dance on earth, and charm all human eyes.

COWPER.

Flowers have a general structure in substance, similar to the other parts of plants, as to vessels for sap, air, &c. only are so much the more exquisitely formed, as the leaves are of so delicate a texture. They are formed in the bud while in the *pith*, and so consequently are the fruit and seed.

The *flowers* of many proceed from a bud, or knot, the leaves or parts of which do first cover the flower contained therein, whilst it is yet unable to bear the inconveniencies of the weather, and defend it from the same; and after the flower is blown, they keep up its leaves, that they may not hang confusedly together, but regularly represent their beauties to the eyes of the beholders: This is exemplified in the *carnation*. Those that have a cup to sustain their leaves,
are

are weak in their texture, and so need this support; but those that are strong have it not, as *lillies, tulips, &c.* Those that have no cup are, however, covered in the bud by some *sheath*, or tegument, to preserve them, while young, and yet too tender to be exposed.

The *leaves* of flowers protect and conceal the *seed* of those that bear it, where nature secretly works to the great end of propagation. The seed is the natural offspring of the flower, and when this is once well formed, the several parts of the flower dwindle and disappear. So that while we are admiring the colour, shape, and perfume of these delightful companions of our walks, they are kindly engaged to provide the means of perpetuating pleasure to us.

The care which the AUTHOR of *nature* has taken to preserve the *seed* of plants, by the flower leaves which contain the embryo, as in a matrix, is admirable! The flowers themselves come not forth till the season suits their particular temperament, many are hid till then under the coverture of the earth, and those that dare to continue above ground all the year, have yet their *gems* carefully locked up, and thus their succession and their fruits are secured to us.

The *flowers* of plants have a remarkable property, when they begin to unfold, and the seed is yet young and tender; they observe the course of the weather, day and night, opening and shutting their flowers accordingly. There is also a property of some flower plants, *twining* round solid bodies, or fixing themselves to them by *claspers*, laying fast hold of what may be in their way. *Flowers* have many admirable properties and parts, that might be considered distinctly, if it were designed to speak of them *botanically*.

From *flowers* (of which every month in the year has its beauties) we eventually gratify the palate, by a valuable *nectar*, and from many we immediately reap agreeable *odours*; but it is for their *colour* to de-
light

light the eye, that we chiefly cultivate them; and in this respect we may exclaim with the poet,

Who can paint like nature? Can imagination boast
Amidst its gay creation, hues like her's?
Or can it mix them with that matchless skill,
And lose them in each other, as appears
In every bud that blows?—

THOMSON.

But not only the *colours* delight the eye, the *forms* of flowers are objects of admiration. The *leaves* of the plants (not to mention the shades of their green and variegations of other colours) are of various symmetry, some plain, others indented, some hard, some soft, smooth, hairy, &c. *Flowers* are composed, some of only one, others of several and numerous leaves. Here it appears like a large vessel gracefully opening. There it forms some grotesque figure, in imitation of a muzzle, head piece, or cowl. Here it is a butterfly, a star, a crown, a radiant sun. Some are scattered on the plant without any art; others compose nosegays, globes, tufts of feathers, garlands, pyramids, &c.—The *seeds* of plants are as variously formed as their leaves and flowers.

The following description of *Flora's festival* and the month of *May*, may very well finish the notice here taken of *flowers*.

The good *Posthumus* chose the first of *May*,
To *FLORA* sacred, and observed the day
With holy rural rites, that won by prayer
She might diffuse her blessing o'er the year;
His homely neighbourhood in green privet dress'd,
With strict devotion keep the cheerful feast,
And crowned with chaplets, to fair *Flora* bring
The first and freshest beauties of the spring.
Gardens are now with choice perfumes supplied,
By these and thousand nameless sweets beside:

'Tis the gay month of all the youthful year,
 When nature smiles serene, and calm the air;
 In the tall grass the soft *Favonius* plays,
 And nightingales repeat their tuneful lays;
 The flocks too frisking o'er the flowry vale,
 With eager joy the cheerful season hail.

RAPIN.

In considering the works of *nature*, it is hardly possible but to feel both concern and indignation at the folly of *Atheism*, and the absurdity of the *Atomic* philosophy. Both have been well exposed by many writers, and completely so by Sir *Richard Blackmore*, in his Poem on the *Creation*; from which though some extracts have been already made, let the following be added,

How dark is human *reason* found,
 How vain the man with wit and learning crown'd;
 How feeble all his strength when he essays
 To trace dark *nature*, and detect her ways,
 Unless he calls its AUTHOR to his aid
 Who ev'ry secret spring of motion laid;
 Who over all his wond'rous works presides,
 And to their useful ends their causes guides?
 These paths in vain are by inquiries trod,
 There's no philosophy without a GOD.
 Th' ETERNAL MIND's existence we sustain
 By proofs so full, by evidence so plain,
 That none of all the sciences have shewn
 Such demonstration of the truths they own.

Good heaven! that men who vaunt discerning sight,
 And arrogant from wisdom's distant height,
 Look down on vulgar mortals who revere
 A CAUSE SUPREME, should their proud building
 rear,
 Without one prop the pond'rous pile to bear!

Ye friends of *Epicurus* look around,
 All nature view with marks of prudence crown'd.

Mind the wise ends which proper means promote,
See how the different parts for different use are wrought;
Contemplate all this conduct and *design*,
Then own, and praise, the ARTIFICER DIVINE!

For several of the foregoing observations, and some of the passages on vegetation, Mr. M. thinks it proper to acknowledge, that he is indebted to the excellent Mr. *Derham*, and others.

SECTION III.

OF THE FORMATION OF A GARDEN.

THE garden here meant, is one where *vegetables*, *fruits* and *flowers* are cultivated under the same inclosure. Considering the profit and pleasure to be reaped from a good *garden*, it is certainly an object of some consequence to the comfort of human life. It will not, therefore, be prudent in any one who has a garden to *form*, to be niggardly, either in allotting ground for it, or in expence and trouble to prepare and lay it out in the *best* manner.

The agreeable work of making a *new* garden can happen to few; and when it does, *soil*, *situation*, and *space*, all favourable, are happy circumstances not always at command: It often indeed happens, however, that pieces of ground are taken into use as additions, and some judgment should be exercised in the choice, that the business may be well done.

To help towards resolving on the *quantity* of ground it may be prudent to cultivate as a garden, a general idea may be given in observing, that an *acre* with wall-trees, hot beds, pots, &c. will furnish employment for a man, who at some busy times will need assistance. The *size* of the garden should, however, be proportioned to the *house*, as to the number of inhabitants it does, or may contain. This is naturally dictated; but yet, it is better to have too much ground allotted than too little, and there is nothing monstrous in a large garden annexed to a small house.

Some families use few, others many vegetables, and it makes a great difference whether the owner is curious to have a *long* season of the same production, or is content to have a supply only at the more common times. But to give some *rule* for the quantity of ground to be laid out, a family of four persons (exclusive of servants) may have a *rood* of good working open ground, and so in proportion.

But if possible, let the garden be rather extensive according to the family; for then, a useful sprinkling of *fruit trees* can be planted in it, which may be expected to do well, under the common culture of the ground about them; a good portion of it also may be allotted for that agreeable fruit the *strawberry* in all its varieties; and the very disagreeable circumstance of being at any time short of vegetables, may be avoided. It should be considered also, that *artichokes*, *asparagus*, and a long succession of *peas* and *beans*, require a good deal of ground. *Hot-beds* will also take up much room, if any thing considerable be done in the way of raising *cucumbers*, *melons*, *flowers*, &c.

The *situation* of a garden should be dry, but rather low than high, and as sheltered as can be from the *North* and *East* winds. These points of the *compass*, should be guarded against by high and good fences; by a wall of at least ten feet high; lower walls do not answer so well for fruit-trees, though one of eight may
do.

do. A garden should be so situated, to be as much warmer as possible, than the general temper of the air is without, or ought to be made warmer by the ring, and subdivision fences: This advantage is essential to the expectation we have from a garden locally considered.

As to *trees* planted without the wall, to break the wind, it is not to be expected to reap much good this way, except from something more than a single row; i. e. a plantation. Yet the fall of the leaves by the autumnal winds is troublesome, and a *high* wall is therefore adviseable. *Spruce firs* have been used in close *shorn* hedges; which as *evergreens*, are proper enough to plant for a screen in a single row, though not very near to the wall; but the best *evergreens* for this purpose are the *evergreen oak*, and the *cork tree*. The *witch elm*, planted close, grows quick, and has a pretty summer appearance behind a wall; but is of little use then, as a screen, except to the *West*; where still, it may shade too much (if planted near) as it mounts high: In a dry hungry soil, the *beech* also is very proper; and both bear cutting. The great *maple*, commonly called the *sycamore*, is handsome, of quick growth, and being fit to stand the rudest blasts, will protect a garden well in a very exposed situation: the wind to be chiefly guarded against as to strength, in most places, being the *westerly*.

The *form* of a garden, may be a square, but an oblong is to be preferred; and the area rather a level; or if there be any slope, it should be *southward*, a point either to the *East*, or *West* not much signifying, but not to the *North*, if it can be avoided, because crops come in late, and plants do not stand the winter so well in such a situation. A garden with a *northern* aspect, has, however, its advantages, being cooler for some summer productions, as *strawberries*, spring sown *cauliflowers*, &c. and therefore to have a little ground

under cultivation, so situated, is desirable; especially for late succession crops.

The *soil* that suits general cultivation best, is a *loam*; rather the red than the black; but there are good soils of various colours, and this must be as it happens: The worst soil is a cold heavy clay, and the next a light sand; a moderate clay, however, is better than a very light soil, though not so pleasant to work. If the soil is not good; i. e. too poor, too strong, or too light, it is to be carefully improved *without delay*. Let it first, at least, be thoroughly broke, and cleaned of all rubbish, to a *regular* level depth at *bottom* as well as top, so as to give full eighteen inches of working mould, if the good soil will admit of it; none that is bad should be thrown up for use, but rather moved away. This rule of *bottom* levelling, is particularly necessary when there is clay below, as it will secretly hold up wet, which should not stand in any part of the garden. When a piece of ground is *cleared* of roots, weeds, stones, &c. it would be of advantage, to have the whole thrown into two feet wide *trenches*, and lay thus as long as conveniently may be. The ground cannot be too well *prepared*; for when this business is not performed to the bottom at first, it is often neglected, and is not conveniently done afterwards; and so it happens, that barely a spade's depth (or less) is too often thought sufficient to go on with. There is this great advantage of a *deep* staple, that in the cultivation of it, the bottom may be brought to the top every other year, by double trenching, and being thus renewed, less dung will do, and sweeter vegetables be grown: Tap-rooted things as *carrots* and *parsnips* require a good depth of soil.

The *aspect* of the *wall* designed for the best fruits, may be full *South*, or rather inclining to the *East*, by which it will catch the sun's rays at it's rise, the cold night dews be earlier and more gently dissipated, and the scorching rays of the afternoon summer's sun are sooner

sooner off. By thus having the walls of a garden not directly to the four points, the *North* wall is greatly advantaged, by having more sun.

The *border* next this wall should be of very good earth, about two feet deep, rising a little towards the wall. A free moderate *loam*, or some fresh maiden soil, not too light, is *necessary*; and if it is not naturally there, let no trouble be spared to procure it, if it can be had, so as to make all the borders *promising* good; and in order to this, if *manure* is necessary, let it rather be that of rotted vegetables, or turf with a small quantity of wood ashes, or a less of soot, or salt; for the roots of fruit-trees should not meet with much *dung*, at least of *horses*; that of *cows* is the best, or that of *sheep* or *hogs*, will do, well-rotted, and well mixed, &c. being worked in the borders, as long as possible before the trees are to be planted. Let the *holes* be some time opened beforehand, that they may be improved by exposure to the atmosphere. Thus due care will be taken, and all things ready to go about the work of *planting* properly.

The *borders* for *peaches*, &c. cannot be too wide, for in a few years the roots will spread a considerable way; and that they may do it without *impediment* of rubbish in the walks, and without meeting with a *bad* soil, is of the greatest consequence to the future health and fruitfulness of the trees.

If a garden is *large* and square, a second *South* wall, running down the middle of it would be very useful; and so, if large and long, a *cross* wall or two might be adopted, as giving opportunity for the cultivation of more trained *fruit trees*; and if there is any idea of *forcing* fruits, these intersecting walls, ranging *East* and *West*, are proper for it (as situated within the ring fence) furnished with flues, &c.

The *best* fruit border being prepared for *peaches*, *nectarines* and *apricots*, or *vines* and *figs*, the trees should take their residence there (if the leaf is falling) about

the latter end of *October*, or as soon after as can be. If the middle of *December* be past, *February* is then the time, though some gardeners plant all winter, if the weather is open enough at the time to work the ground. *March* may do, or even [upon a pinch] the beginning of *April*.

Wall-trees should not be older than *two* years from grafting, or budding. Much disappointment has been the consequence of planting old *trained trees*, through their being accustomed (perhaps) to a contrary soil, or by damage done the roots in taking the trees up; and thus, instead of saving time, it has frequently been lost, being obliged, (after years) to be replaced with young ones. But if trained trees are to be made use of, let them be planted as early, and with as full roots as possible, and in a right good soil. Except in fine situations, as to sun, shelter, and climate, never plant *early* and *late* peaches, as the first may be cut off, and the latter not ripen: *October* peaches are generally poor fruit *North* of *London*.

The *distance* to plant, should be about eight or nine inches from the wall, and let *apricots*, *peaches*, and *nectarines* be twenty feet asunder, more or less, according to the height of the wall; though for the small early sorts fifteen or sixteen feet will do. As the larger *apricots*, however, grow freely, and do not well endure the *knife*, they ought to have twenty-five feet allowed them: This is for a wall of nine or ten feet high; if higher, the distance may be less, and if lower, the contrary. This room may seem (to some) too great; but when trees are planted in too *confined* a space, after a few years it is troublesome to keep them pruned within bounds; and the cutting they *must* have, makes them run to wood, and thus to become less fruitful. *Fig-trees* require as much room as the *apricot*, or rather more, as they grow freely, and are to extend without shortening. Though other trees are best planted in *October*, the *Fig* should not be till *March*.

The

The *intermediate* spaces between *peaches*, *nectarines*, and *apricots*, may have a *vine*, a *dwarf-cherry*, or *currant*, or *gooseberry tree*, of the early sorts, as the smooth green and small red, to come in early; and improved in the beauty, size, and flavour of their fruit, by the advantage of situation. But wheresoever *grapes* can be expected to *ripen*, there let a young plant, or cutting, be set, though the space be confined; for the *vine* (freely as it shoots) bears the knife well to keep it within bounds. If the wall be high, the *cherry*, or *plum*, may be half-standards, which being after a while kept above, will be more out of the way of the principal trees: though dwarfs may be trained so as not to interfere. Some have planted half-standards of the same kind of fruit as the dwarfs: but which ever way is used, let the intermediate trees be pruned away below in good time, in order to accommodate the *principals* freely as they mount and extend. The better way however is, when the wall is tolerably covered, to *extirpate* the intermediate trees, as (when large) they impoverish the border, and too much rob the principals of nutriment: If taken up well, in season, and pruned properly, they may be planted elsewhere. Something merely *ornamental* may occupy the vacancies also, as some *double blossomed* fruit tree, *passion tree*, *roses*, &c. or in a fine situation, a *pomegranate*; any of which may be removed when their room is wanted. See section viii. *On planting*.

Plums, *cherries*, and *pears*, may occupy the other walls, the two former at about fifteen, or it may be twenty feet asunder. *Cherries*, except the *Morella*, will not do well in a full *North* aspect; but any sort of *plum* (rather a late one) and summer *pears*, and also *nut trees* will, if you chuse to train them. There should always be some *currants* and *gooseberries* in an *E.* and *N.* situation, at the distance of eight feet, where they will be easily *matted*, (when ripe) to come in late, as *October*, *November*, or perhaps *December*. *Pear trees*

of free growth are hardly to be kept within tolerable compass on *low* walls; but if attempted, should have at least thirty feet allowed them. The best sorts of *winter pears* deserve a *southerly* wall to ripen them well, and improve them in size and flavour: The gable end of a house is well adapted for a pear tree, as it affords room which they require. *Apples* may do on a wall, (and if any on a *good* wall, let it be the *golden pippin*) yet the practice is seldom adopted: The same may be said of *mulberries*, though they come to bearing much sooner against a wall; but they need not have a *South* aspect, indeed it has been asserted, that they do the best in a *North* one. For *furnishing walls*, chuse trees of moderate wood, rather than strong, young, well rooted, clean, and healthy.

When the *planting* of a garden is finished, it will be a good way to have a *plan* of it taken, with the names of every peculiar tree marked thereon, in their place, to be assured of the sorts when they come to bear. Some have the names of the trees painted on *boards*, and placed behind them, to which if added the time of ripening (fixed *late* enough) it would tend to prevent a premature plucking by visitors, &c.

Here it may be observed, that if any *evergreen hedges* are desired, in or about the garden, *yew*, *box*, *alaternus*, *celastrus*, *phillyrea*, and *pyracantha*, may be kept low, and clipped in form, if so desired: In addition to which, if a few *roses* were intermixed, it would have a pretty effect. A *deciduous* hedge for subdivision, or screen, &c. may be made of *elms* or *limes*, setting the larger plants at five feet asunder, and a smaller one between. Or an ordinary fence, or subdivision, may be quickly formed of *elder* cuttings, stuck in at two feet asunder, which may be kept cut within bounds.

The *walks* come next under consideration; and they are to be begun from the *best wall*; the border of which being regularly levelled and settled, the walk is to be governed by it. A *wide* border next the *South* (as was said)

said) is best for the trees, and moreover for the many uses that may be made of it for the smaller early, or late tender esculents, and a few early cauliflowers. For the sake of a pleasant sheltered walk, to have the *South* border narrow may be desirable; but on no account let it be within six feet. Take care that this *walk* is not *sunk* too much, and that it have a bottom of good earth, as deep as where the trees are planted. Let the body of gravel be thin, and then the roots of the trees will be admitted to run properly under the walk, and find wholesome nourishment; where if they were stopped by rubbish, they would be apt to canker, and irrecoverably disease the tree.

The *number* and *breadth* of the walks must in a measure be determined by the quantity of allotted ground; exceeding in these particulars where there is room. But better be few and wide walks, than many and contracted. If the garden is small, one good walk all round is sufficient; and if long and narrow, the cross walks should not be many: six, or eight feet, is not too wide for a moderate sized garden.

If the grounds be laid out in *Autumn*, leave the walks alone till *Spring*, when the earth will be settled. Gravel laid towards *Winter* would be disturbed by the frost, and the necessary work about the quarters and borders. But whenever made, the garden ought to be first carefully brought to an exact level; then the walks should be stumpt, keeping the tops of the stumps very level (as guides) to the *true* pitch of the quarters by a *light* line, made of good hemp, that will bear pulling tight. Proceed to take the earth out of the alleys about eight inches deep, which may be thrown towards the middle of the quarters, to give them a *small* convexity, which makes them look well.

Rake the bottom of the walk level, and lay the gravel to within two inches of the top of the stumps. The gravel will settle a little, but the walks should always be about three or four inches at their edge,

below the quarters, or these will have a flat, and so a mean appearance.

If *Edgings* are to be made, in order to separate between the earth and gravel, especially if of stone, or wood, or box, they should be done first, and they will be a good rule to lay the walks by.

If plenty of *Gravel*, lay it moderately fine: if scarce, some small stones, or rubbish of any kind, may be laid in first, and rammed down level with a broad rammer; but do not spare for a little expence, if gravel can be had, as a thick coat of fine gravel, will bear relaying, or turning over, to refresh it occasionally in the spring. As the gravel is laid, let the operator neatly rake the larger parts down to the bottom leaving a fine surface, in a *small* degree convex, i. e. just barely sufficient to throw off wet: walks that lie high in the middle, are unpleasant to both eye and feet, and cannot be so well rolled, and kept in order.

When *deep* walks of gravel are designed, for the sake of the mould dug out of the alleys, it should be forborne, and laid thin, if any *trees* are designed to be planted near the edge; for if the roots of trees have not a good soil to strike into, when they reach the walks they will not (as has been observed) prosper. In laying gravel very thick, it is a good way to do it at two courses; the first of which may be rough as it comes from the pit, yet still raking the larger parts down, and then ramming or treading it; and the last course should be of all screened materials.

It is best to lay a *few yards* of gravel only at a time, before ramming or treading; after which it may be necessary to go over it with a fine iron rake, tooth and back; and then a whole walk being finished, it should be repeatedly pressed with a moderately heavy roller; and again after the next rain that falls: so will the walks become nicely level and firm, in which their excellence consists.

Grass

Grass Walks may do where gravel is scarce; but the latter is so clearly preferable, that except for a little variety in large gardens where there are many walks, they will hardly be made choice of. They are troublesome to keep in order, and if much used are apt to get bare, and out of level, especially when narrow; they are also frequently damp to the feet.

Camomile, has been used also to form green or carpet walks, planting it in sets about nine or ten inches asunder; which naturally spreading, the runners are fixed by walking on them, or rolling.

Sand may be adopted for walks, and there is a binding sort of it, that does very well; but lay not any of it too thick, as it is the less firm for it. *Drift sand* is a good substitute for gravel.

Coal Ashes strewed thinly in the alleys are better than nothing, as they at least serve to keep the feet dry and clean. If the garden be a *strong* soil, these ashes (when worn down) may be thrown out of the walks, with a little of the earth, and will prove a good manure for the quarters.

Sea Shells make very good walks.

All *trees* designed to be planted, are to be thought of before winter. Those of the *wall* have been spoken of; and as to *standards* they must have a fair *depth* of good soil (not very dungy) to grow in, for it should be remembered, that tree roots in a garden are prevented from running over the *surface*, as they do in an undisturbed orchard. It is necessary that some caution should be used not to dig the ground too near, and too deep about garden trees; lest loosening the roots, they should not be able to stand the wind; and because the nearer the surface any root grows, the more, and choicer fruit, the tree bears.

But the fewer *standard trees* in a garden the better, as they take up much room, and by their shade prevent the proper growth of vegetables that are any thing near them: so that if a garden is small, there should.

be no trees except those of the wall. The case is different where there is ample room; and the *blissoms* of fruit trees (apples particularly) are so delightful, that if they produced nothing for the palate, there would be a sufficient inducement to plant them for ornament; but let them be dwarf standards, in preference to espaliers.

Dwarf-standards occasion less trouble to keep them in order than espaliers, and are (generally) more productive; for *Espalier* trees are seldom managed well, and thus appear unsightly; at best they are stiff and formal, and obstruct the sight in viewing the quarters of a garden, which (if in order,) are worthy of coming under the eye: the violence done to nature, to keep espaliers in form, is commonly paid by pains and disappointment. A writer of repute observes, *apples* on *French* paradise stocks, planted at eight or nine feet distance, pruned and kept in an easy manner, make a fine appearance, and produce better fruit, and in greater quantities, than when they are in espaliers; *Dutch* paradise stocks however last longer, and are altogether superior. For managing *Dwarf trees*, see *Pruning*.

If *Espaliers* are planted, let them be only fruit of the best sorts, and in *spacious* gardens, where they may have a good length and height allowed them to grow freely; and let it be resolved to do the business *neatly*. If they may have nothing better than poles or stakes to be trained to, let them at least be strait, and of some equality in size, as to height and thickness, smooth, and not too clumsy for the purpose; fix them well in the ground, upright, and about nine inches asunder; at first only four feet from the ground, and raised as the trees advance in height. Apples on *paradise stocks* best suit for espaliers in small gardens, and pears on *quince stocks*, as they maintain a small size; but they are apt to decay by the cutting they must have, and so do not prove enduring trees.

Espalier

Espalier trees should rather be trained to *sawed* materials properly framed together, smoothed and painted. But for a year or two, they may be fastened to light stakes, when they will have formed a head, to begin to train them for bearing in the *neat* manner proposed; i. e. to slips of deal joined to light oak posts as *trellises*. Whether the slips be placed perpendicularly, or longitudinally, seem indifferent. If the longitudinal mode of training be the best approved, strong iron *wire*, may be recommended to run through the posts, instead of slips of wood, as it shades less and is stronger and neater. If upright slips are used, they should be slender, and from six to eight inches distance, according to the greater or less freedom of the natural growth of the tree. The height may be also according to the nature of the tree, from five to six feet; and it will not answer to have them lower. Only a moderate length of *trellis* (on each hand) need be fixed at first, and so additions made as the tree extends. The posts may be about four feet asunder, the first on each hand, being two feet, or a yard, from the stem of the tree.

Apples should be allowed twenty-four feet and *pears* thirty; except those grafted on paradise or quince stocks, for which little more than half this distance may do. *Cherries* and *Plums* should have about eighteen or twenty feet allowed them. *Quinces*, *medlars*, *mulberries*, and *filberds* may also be espaliered. The trees should be planted about a yard from the edge; but farther off were better, especially if the walks lie deep of gravel or poor materials.

The *Breda*, and *Brussels* apricots, have succeeded in espaliers, as also in dwarf and full standards; but the general climate of the place must be mild, and the situation they are planted in must be very sunny and well sheltered: The fruit from standard *apricots* is very fine, and abundant; but they come not to bearing under several (sometimes ten or twelve) years.

Currants,

Currants, *gooseberries* and *raspberries*, do well espalliered, as to a production of early and fine fruit.

Trees of a more humble nature, and *shrubs*, next occupy attention in furnishing a garden. *Currants* and *gooseberries* (as bushes) should be planted three feet from the edge, and full six feet asunder. Some of these very useful shrubs should grow in every aspect of the garden, in order to have a succession of their fruits, as long as may be. Those who choose to plant whole quarters of *currants* and *gooseberries*, ought to do it at six feet asunder in the rows, and the rows eight feet from one another.

Raspberries may be set in plantations, in rows five feet asunder allowing three feet between the plants. Though these shrubs are best by themselves, yet here and there by the walks a detached bunch may be kept, or here and there one against a warm wall. Between rows of *raspberries* planted at the above distance, *cole-worts*, early *cabbages*, *cauliflowers*, and *lettuces* may be set, or *spinach* sowed in drills, the raspberries having had their pruning and dressing early in Autumn, for the purpose. Every year a little short manure, dug in close about the roots, (and deeper as the plantation gets older) will insure fine fruit. Raspberries are not very nice as to soil and situation; but the *twice bearing* sort should have a dry soil and warm birth to forward the crops, that the *last* may be in time: See that the plants to be set have good brushy roots, and two or three eyes to each root near the stems, for the next year's bearing. The smooth wooded, or *cane rasp*, is rather to be preferred.

Strawberries may be planted at the *edges* of borders and quarters, either in single or double rows, (rather the latter) for the convenience of gathering, and for ornament; but the common and best way is, in four feet *beds*, with eighteen inch or two feet alleys, on which beds may be five rows of the *wood* and *Alpine*, four of the *scarlet* and *pine-apple*, three of the *Carolina*,

Carolina, and two of the *Chili*; setting the plants at the same distance in the rows, as the rows are from one another in what is called the *quincunx* order. In a good, cool, loamy soil, which suits them best, a little more distance may be allowed the four first sorts; and in quite a dry light soil, somewhat less, that they may shade one another the better from drought.

The best *situation* for strawberries is an open and sunny one, as thus they bear more, and finer flavoured fruit. Some of the *scarlets* should be planted under warm walls to come early. The *woods* bear shade as natural to them, and the *alpines* do tolerably well in it: As lengthening the season of fruit is a desirable circumstance; for these three sorts (at least) the situation should be various.

The most proper *time* for planting the strawberry is the *first* moist weather in *September*, (or even earlier) that they may be established in the ground before winter, and they will bear the better the first year: Frost is apt to throw up late planted ones, and injures, if not destroys them. Those planted in spring often suffer from drought, and bear very little the first year, except the *alpines*: Choose *forward* runners for planting, and let them be from beds in full bearing, i. e. of two or three years old; for plants from old beds are not so fruitful: Take care also they come from beds producing fruit good in its kind, and true as to sort: Much depends on this, see *Nursery*. Press the mould to the roots, give them a watering, and again once or twice, if the weather proves dry. Some gardeners let them *run* over the beds, which in a dry, light soil, may be proper; but in this case, a greater distance should be allowed them at planting.

If the *alpine* sort be planted on a warm border, eighteen inches asunder, and suffered to spread, the first *runners* will fruit the same year, and sometimes this *prolific* strawberry bears till *November*.

Fresh

Fresh *plantations* of strawberries should be made every fourth year, though in a good soil, and with good management they will continue longer; so that where they are suffered to *run*, the plants being frequently renewed, and old ones removed, beds have borne tolerably for ten years. Some gardeners insist that this spreading mode is the best way of cultivating the strawberry. In a *dry* season, such full covered beds have the advantage; but in a *wet* one, the fruit is apt to rot, though still in such a season, it is cleaner than from plants growing in an open way; but this carries the appearance of, (and rather argues) neglected culture. See the sections, *nursery*, *pruning*, and *fruits*. The method of keeping them in *detached* plants produces the largest and best ripened fruit, and on the whole is preferable; for this practice there cannot be a stronger argument, than that those follow it, who cultivate the strawberry for sale. See section 17.

The *watering* of strawberries should not be neglected, doing it almost daily, when in flower and are setting their fruit, if the weather proves dry, particularly to those under a warm wall; but this is not to be continued when the fruit is nearly ripe, which would spoil the flavour, and dispose them to decay.

Flowering Shrubs may be dispersed about, and herbaceous *perennial flowers*; but plant them not too near the edge, lest they hang over the walks: The *bulbous* sorts may however be within six inches.

Asparagus and *artichokes* should be thought of, but they take up much room, and in *small* gardens may therefore be left out. It will be of little use to have less than fifty or sixty feet of *asparagus* beds, as there would be so few heads to cut at a time; and *artichokes* must be planted wide, 'or they will not grow large and fleshy, in which their merit consists.

Let not *pôt herbs* be forgot, but provide a general *herbary* in that part of the garden which is most contiguous to the kitchen.

Having

Having spoken of *stationary* things, the *routine* of the *seasons* must dictate the rest; and the inclinations of the palate will refresh the memory to take care of providing the most necessary and agreeable *esculents* for dressing, and raw *sallads*.

Perennial flowers have been mentioned; but let *fancy* direct as many *annuals*, and *biennials* to be cultivated, as room can conveniently be found for, that the garden may be, as much as possible, ornamental.

In *furnishing* a garden with *shrubs* and *flowers*, respect should be had to their usual *height*, their *bulk*, *colour* and *season*; (see section 19) that the mixture may be properly varied, harmonious to the eye, and come in regular succession. The *latter* end of the year is seldom provided for so well as it might be; *late flowers* should be set in warm situations, as their proper place. In the most dreary months, by judicious planting, *evergreens* in their neat and chearful "winter liveries," may be viewed from our windows, and serve instead of flowers.

Those who garden upon a *large* scale, should take care to have every thing proper and convenient as liberally provided. Let there be a well situated place for *hot-beds*, with some building as a *tool house*, and (if dry) for keeping *bulbs*, *seeds*, and *herbs*. Those also who garden even upon a *small* scale will do well to have every needful implement: It is the way to save time and labour, and have the work done well.

If *water* can be introduced, and kept *clean* with verdant banks around it, it would be found very useful where a garden is large: but let it be as near the center as possible, as the most convenient situation. It should be fed from a spring, and (if it could) be made drip into the reservoir, because its trickling noise is agreeable in a garden to most ears.

Mixed Gardening, as comprehending the *useful* with the *sweet*—the *profitable* with the *pleasant*, has been the subject hitherto; but if the *flower garden* and the
kitchen

kitchen garden are to be distinct things, the case is altered; not so much indeed, but that still the *kitchen garden* should be adorned with a sprinkling of the more ordinary decorations, to skirt the quarters, which should be chiefly those of the most powerful sweet scents, as *roses*, *sweet-briars*, and *honey-suckles*, *wall-flowers*, *stocks*, *pinks*, *minionette*, &c. in order to counteract the coarser effluvia of vegetables, or of dead leaves, which are too commonly suffered to annoy.

The *flower garden* (properly so called) should be rather *small* than large; and if a separate portion of ground be appropriated for this, only the *choicest* gifts of *Flora* should be introduced, and no trouble spared to cultivate them in the *best* manner. The beds of this garden should be narrow, and consequently the walks numerous; and not more than one half, or two thirds the width of the beds, except one principal walk all round, which may be a little wider. The gravel (or whatever the walks are made of) should lie about four inches below the edge. The beds for *tulips*, *hyacinths*, *anemonies*, *ranunculuses*, &c. may be three and a half, or four feet wide, and those for single flowers the same, or only two and a half feet wide in the borders; which was the most usual breadth in the *old flower gardens*. Let the beds lie rather rounded in the middle; but the walks flat.

Figured parterres in scrolls, flourishes, &c. have got out of fashion, as a taste for open and extensive gardening has prevailed; but when the beds are not too fanciful, but regular in their shapes, and chiefly at right angles, (after the *Chinese* manner) an assemblage of all sorts of flowers, in a fancy spot of about sixty feet square, is a delightful home source of pleasure, worthy of pursuit. There should be neat *edgings* of *box* to these beds, or rather of neat inch *boards*, to keep up the mould. Be sure to keep the box from the very first (as soon as rooted) and always after, as low as possible: Clip it twice a year, April and July.

An

* * * * *

An ORCHARD may be spoken of here; i. e. a spot to plant *standard* fruit trees in, which are forbidden a place in the garden; but it must not be a small spot. The front row, should be *half* standards, and before these may be a row of *dwarfs*; observing to plant the most *towering* sorts (in kind) of the *full* standards behind. The ground should be dug thoroughly as low as the proper soil is, and if not naturally good, let it be improved by *dung* duly rotted, and worked well in a full spade. In a strong soil *lime* should make a part of the manure. If the ground be naturally *uneven*, it will not be proper to level it, as this would rob the higher parts, and needlessly enrich the lower. A strong cool soil does best for an *orchard*, but it must not be wet. If it holds up water, it should be well drained by trenches.

A piece of ground designed for an *orchard*, would be greatly improved by first cultivating it as a *kitchen garden* for a year or two, manuring well at the time: Or, give it a good tillage; let it have a winter's frost, by deep trenching into high ridges, turned over in spring, and summer fallowed. The trees being planted, at proper distances, the ground may be kept under some sort of crop, for several years to come, with proper dressing. In a large orchard, the plough may be used for *corn*, *potatoes*, &c. If the soil is poor, every opportunity should be taken to give it a little manure, that there may be proper food prepared for the roots, as they extend. No doubt many orchards would bear much better, if the whole ground (as the roots extend far) were before winter dug or ploughed over every second, or third year, and dressed, by digging in some rotten dung, or sprinkling over the whole (when rough dug) foot and pigeon's dung, or that of any other poultry; this will wash in by rains and snows, and do much good. Or if an orchard were ploughed,

ploughed, or rough dug, every year, immediately after the fall of the leaf without manuring, it would be very beneficial; for it is not adviseable to give trees *much* dung.

The *thinning* of the branches of orchard trees, by an occasional use of the saw, bill, chizzel, or knife, should not be neglected, that the air, may have free course, and the sun access among the branches: This is more especially necessary in thick planted orchards, and the benefit of proper pruning is *very* great, though much neglected. See *Pruning of Standards*, Section XII.

To succeed well, *apples* and *pears* should be planted from thirty to forty feet asunder, and *cherries* and *plums* from twenty to thirty, according to the richness of the land. The *walnut* should be rather planted singly; but if in a number together, ought to be forty feet asunder for *fruit*, and thirty for *timber*. See *Nursery*. These distances appear great, but it is necessary, as after a few years closer planting would be found evident. See *planting and pruning*, Sect. 9, 12.

If the *intermediate* ground is not cultivated, as before recommended, some sort of fruit (as *cherry*, *plum*, or *codling*) or young forest trees may be planted, to be removed in time; or currants, gooseberries, &c. it may be kept also in grass, the trees thorned, and small cattle turned in; which grass, as it comes early, will be found particularly useful to those who have much stock. On this subject, it may not be amiss to give the instructions of one of our best gardeners.

It is an error (says he) to let *turf* cover the surface of the ground in an orchard. The trees should be at such distances, that a *plough* may go between them, and in that case the trees thrive every way better; the breaking of the ground serves as manure without its rankness, and the *sun* and *air* have free passage, which is very essential to the good taste and well ripening of the fruit. Where the plough cannot be used,
dig

dig the ground a full spade deep, picking out the roots of weeds.

The best *manure* for an orchard, is a mixture of two parts dung and one part coal-foot. Let this be blended carefully, and spread all over the ground, between the trees, not piled up in heaps just about their stems, according to the old practice.

The *cultivation* of the ground about the trees in an orchard, is more neglected than any other part of the gardener's business, yet there is not any thing more necessary. *Hill.*

SECTION IV.

OF THE CULTIVATION OF A GARDEN.

THE *cultivation* of a garden includes the doing all those things that are necessary, in order to a seasonable and prolific *production* of the various vegetables, fruits and flowers, we are disposed to propagate.

The *soil* must be first attended to, always to keep the fruit borders in heart, and the quarters in a proper *state* for use, when called upon to receive either seeds or plants. Ground should never lie long without stirring; and if all is so well as might be, or not, it must be borne with; but the soil of a garden, *should* have a *free, sweet, and rich* soil, by proper digging, &c. or no great things can be done, as to forward, hand-
some,

some, or well flavoured productions. It should be *free*, that the roots of plants may not be impeded in the quest of food; *sweet* that the food may be wholesome, and *rich* that there may be no defect of nutriment.

Trenching the vacant ground in a garden, does good to all soils in the *autumn* and *winter* seasons, and that in proportion to its strength, being indispensibly necessary for clays to separate the parts: The light soils may do by being only *rough* dug, which is a method that stronger soils may be also benefited by. The soil would be still farther improved, by re-trenching, or rough-digging, once or twice in the winter, if the opportunity offers, particularly if strong or stubborn. Let the ridges lie E. and W. except the ground be a slope, when they may be in the direction that does.

When *manure* is applied, the ground is not to be *glutted* with dung; for a little at a time, well-rotted, is sufficient, so that it comes often enough, as opportunity, and the nature of the cropping may dictate. It is indeed a sort of *rule* with gardeners, that ground should be dunged every second year; but circumstances may make more or less of it necessary, and rules should never be *indiscriminately* applied. If dung is pretty well reduced, (as it were to earth) much less will do, and let it not be buried too deep; but if it is otherwise, lay it low, to be dug upwards another time, when it is more consumed.

It is an *excellent* way of manuring, especially where the superficial soil is much exhausted, to spread over rotten dung, late in autumn, in the winter, or early in spring, and so let it remain, till the ground is wanted, before it is dug in; which should however be slightly dug before the manure is put on, or forked in a little afterwards. This method is particularly to be recommended where crops of *onions*, *leeks*, and such superficial rooting plants are to be.

Dung used in great quantities, and lying in lumps, breeds worms, grubs, and insects, and makes plants grow

grow too rampant and rank flavoured. *Carrots* it cankers, and it disagrees with many things; it is apt also to make the ground parch, and burn the crops sown upon it in a hot summer. On these accounts some persons have been induced to dress their gardens only with rich fresh *earth*; which, if they do not over-crop, will do very well, being accompanied with good *tillage*; which alone is of much use and is essential to due cultivation. *Vegetables* are always *sweeter*, the less dung is used, and little need be used, when the natural soil is good and deep; for the earth may be so dug, that what is at the top one year may be at the bottom the next: which is a *manœuvre* evidently advantageous, as a good part of the strength of the top soil washes downwards: The method just recommended, of letting dung lie on the surface for a time, is good also, as it abates the rankness of it.

If the ground is in proper *heart*, every spot may be contrived to be *constantly* and successfully cropped. The common gardeners about *London*, and other great towns, who give high rents for their land, contrive (manuring well) a *succession* of crops, one under another very dexterously; and this sort of conduct should be imitated by private persons. Thus a little spot, in skilful and industrious hands, shall be much more productive than a much greater under contrary management: But when hard worked, the soil will not do without a good deal of dung.

A *caution* must be observed, for if plants grow crowding thick, it defeats the end in view; and *fruit borders* must not be *much* cropped, furnishing them chiefly with small plants, of short duration, and superficial growth, lest the roots of the trees be too much robbed and shaded.

Have an eye on *vacant ground*, either for immediate use, or to prepare it for future.

In the occupation of ground, the *change* of crops will be proper, as each sort of plant draws a *somewhat different*

different nourishment: so that after a full crop of one thing, one of *another* kind may often be immediately sown; but it should be contrived that a wide crop may follow a close one, and contrariwise.

Close crops, as onions, leeks, carrots, &c. are conveniently and neatly cultivated in *beds* of from four to five feet widths, with alleys of a foot to eighteen inches between them.

The *seasons* proper for furnishing the ground with every particular vegetable, should be well attended to that each may be obtained as *early* as its nature will permit; and of the *seeds* and *plants* we use, care must be taken to procure the *best* of the kind, lest after all the trouble of cultivation, disappointment as to quality should ensue.

The *quantity* sown and planted is (in a degree) to be determined by the portion of ground that can be spared; but it should be always a *rule*, to sow and plant *more* than probably enough, as more may happen to be wanted than expected, and a cross season or other accident, may occasion a failure. As exact rules cannot be laid down, the exercise of a little *judgment* will be necessary, in order to *proportion* crops aright; for to have too much of one thing, and too little of another, is disagreeable. Respect should be paid to the natural duration of crops, some going off soon, and others being lasting, and that too according to the season they are propagated in. See, *Of propagation*, in the next section.

Seeds and *plants* should be *adapted* as much as possible to the *soil* and *situation* which best suits them; for in the same garden some difference will be found, not only as to sun and shelter, but the earth; as some will be richer, some poorer, some deeper, some shallower, and some (perhaps) heavier, some lighter, in due attention to which, advantage is to be reaped.

Let the ground on all occasions be *well dug*.

Weeding

Weeding in time is a material thing in culture, and *stirring* the ground about plants, as also *earthing up*, where necessary, must be attended to; and in some cases pressing the mould to the stems of vegetables will be proper, for their better support. *Earthing up* well before winter frost sets in preserves plants, forwards, and improves them. Weeds exhaust the strength of the ground, and if they are suffered to seed and sow themselves, may be truly called, "*garden sins*:" The *hand* and *hoe* are the instruments for the purpose; and where the trouble is not too much, the former will generally be the best, when it is not thought necessary to stir the ground; which indeed may be done afterwards, when all is clean, to better purpose. *Digging*, where the spade can go, between the rows of plants is a good method of destroying weeds, and as it cuts off the straggling fibres of roots, they strike afresh, in numerous new shoots, to the great benefit of the plants. Deep *hoeing* gives a degree of fertility to the earth. Breaking the surface will keep the soil in *health*; for when it lies in a *hard* or bound state, enriching showers run off, and the salubrious air cannot enter.

The *thinning* of seedling crops should be done in time, before the young plants have drawn one another up too much. All plants grow stronger, and ripen their juices better, when the air circulates freely round them, and the sun is not prevented from an immediate influence; an attention to which should be paid from the *first* appearance of plants breaking ground.

In thinning *close* crops, as *onions*, *carrots*, *turnips*, &c. be sure that they are not left too near, for instead of reaping a greater produce, there would assuredly be a less. When they stand too close, they will make tall and large tops, but are prevented swelling in their roots: better to err on the *wide* side, for though there are fewer plants they will be finer.

D

In

In the *pricking* and *planting* out of crops, be sure to do it as *early* as may be; let every thing be regular, (not sparing the *line*) allowing always *room* enough for this work; and being thus treated, vegetables will come forwarder, larger, and of a superior flavour. These advantages are seen in all things, but in *lettuces* particularly, which often have not half the room allowed them they should. *Over cropping* robs the ground of strength to no purpose, except increasing the dunghill; it makes it also inconvenient to weed, rake and clean up, which in a *private* garden (at least) it is proper frequently to do.

Dibble planting, as being easy and expeditious, is the common way of setting out plants by; but (except indeed quite small ones) they are best put in by a small *spade* or *trowel*. In the former method, the roots are frequently doubled and distorted, so as to receive (at least) a great check, if not to occasion a failure, when so put out towards winter; but in the latter way, the roots lie free and easy, and presently establish themselves in health and strength. There is more in this than gardeners in general allow of. Ground designed to be planted, is best dug a day or two before wanted.

Watering is a thing of some importance in cultivation, though not so much as many make it. It is a moot point, whether more harm than good is not on the whole, done by it, when it is thought generally necessary in a dry season. In a large garden, it is an *Herculean* labour to water every thing, and so the temptation generally prevails either wholly to neglect it, or to do it irregularly or defectively. To water nothing is too much on the dry side: but there is such a thing as watering too much, which spoils the flavour, and makes esculents less wholesome.

But *watering* will assuredly benefit some things; as (sparingly) new planted trees, flowers and vegetables. Watering is of use to settle the earth about the roots of plants newly set, for it is by a close union, (as it were)

were) of the earth with them, that they prosper. The watering of new planted things may be to be repeated, but it should not be done very often, as it is then apt to sicken, and rot the young roots. As soon as they are believed to have got hold of the ground, desist from watering. When any plant is towards *flowering* then moisture is more necessary.

Shading of new planted things, particularly flowers, is of much benefit, and that in proportion as the season is sunny. So that the imitating a cloud by a shade, is evidently proper, and frequently necessary to the life of the plant, as neglecting this business has frequently proved: a little water in a cloudy time does much good.

Strawberries and *Cauliflowers* are generally watered in a dry season; that is, the strawberries, when in bloom, in order to set the fruit, and the cauliflowers, when they shew fruit, in order to swell the head: In a light soil this ought particularly to be done. In very dry weather, *asparagus seedlings*, *early turnips*, *carrots*, *radishes*, and *small-sallads* will need watering. *Slips*, *cuttings*, and *layers* of any kind will need water. *Pots* of flowers must have it frequently.

When *watering* is undertook, let it be a *complete* business; i. e. to the bottom and extent of the roots, as much as may be. The wetting only of the surface of the ground is of little use, and of some certain harm, as it binds and cracks the ground, and so excludes the benefit of showers, dews, air and sun, from entering the soil, and benefitting the roots as they otherwise would do. Wetting the surface of the ground, (however) in a summer's evening, as it makes a cool atmosphere, a dew is formed, which pervades the leaves, and helps to fill their exhausted vessels.

Watering the roots of *wall-trees*, (if dry weather) when the fruit is setting, is by some thought necessary. The best way to do this effectually, is to make a few holes at some distance from the tree with a smooth

sharp pointed stake, the better to let the water down; but this may wound the roots, and should only be practiced in a light soil, and *very* dry season. To young trees only it can however be of use, for the roots of old ones run far and wide; and it is the small fibres of these distant roots, on which the tree chiefly depends for food. *Vines* should have no water till they are off blossom, (*July*) and the fruit as big as large pin's heads; and then if the season be very hot and dry, watering the roots twice a week will help the fruit to swell.

An *engine* to water the leaves of vines, and all other wall trees in a summer evening, refreshes them much, and helps to rid the trees and wall of insects and filth. Late in the summer, when the nights begin to get cold, it is time to leave off all watering, except things in *pots* and *frames*, which should have it then only in the morning. As watering is apt to make ground hide-bound and unsightly, let the *surface* be occasionally stirred and raked, which will make future waterings enter the ground the better: when the ground is hard on the top, the water runs away from its proper place, and half the labour is lost. Many things are impatient of being kept wet about the shanks, and therefore watering should be generally at a little distance.

The *quality* of water used for refreshing plants is a material thing, and it is very various in its nature, according to the peculiar earths and mineral substances, that it passes through. *Rain* water is by far the best, as appears by the verdure and vivacity it gives: It is nourishing, as being full of vegetable food.

River water is next in fitness, and pond water follows, if it is sweet. *Well* water is of least account, tho' local circumstances occasion its use the most. So that in forming a judgment concerning watering, it is not simply to be considered, whether plants *should* be watered; but whether with *well* water, and that too from a pump. Pump water, if used directly (to say nothing of it's hardness) is so *cold* in summer, that the roots feel

feel an extreme sensation; for as they are then warm, through a lively fermentation in the earth, great cold so contracts their vessels, that they perform their proper offices with difficulty, and become diseased.

Hard water is softened by throwing in a little *dung*, *lime*, *marle*, or *earth*, and rather that of a *loamy* nature, or *clay*, which will greatly fit it for use. Some persons keep *chalk* in wells, cisterns, &c. to soften the water; and others have kept hard water on bruised *oyster-shells* a few days in a tub, with a view to watering flowers, &c. others have put a bag of *barley* in it, finding the water that has been used in *malting*, is rendered very soft, though ever so hard when put on the grain. Fresh *bran* softens water much, stirring it up now and then for a day or two. At any rate, however, let hard water stand exposed to the *sun* and *air*, as long as may be; a few hours will improve it, but a few days will better qualify it for vegetation.

Water is sometimes *enriched* with dungs and salts. Some experiments of putting a small quantity of *nitre* into water to keep flowers flourishing in phials, and rooted plants in pots, appear to prove beneficial. That courser way of impregnating water with *dungs* may be useful to pots of plants that are too full of roots, or to any thing growing in a poor soil; but the water should not be made *too* rank, or suffered to touch the leaves; it should stand also in the *sun* two or three days, and be stirred up now and then. *Sheep's-dung* is that which has been used for the purpose, and is to be preferred, though others may do. Let the *rule* be, to impregnate the water about an equivalent of an ounce of sea-salt to a gallon: A stronger mixture might do mischief; yet a rich one poured plentifully on old *asparagus beds* in autumn and spring would do much good.

The MANAGEMENT of a garden, as somewhat distinct from the cultivation of it, is an object of consequence; i. e. to keep it in such ORDER, that it may not offend the *eye*, or fail in those general impressions

of *pleasure* it is capable of affording, when things are shewn in their *best* manner. A garden may be cultivated so as to be *profitable*; and yet not conducted so as to be *agreeable* to walk in, which in a private garden is a circumstance surely to be lamented: The *proper* appearance of a *well* managed one is expressed by the word NEAT: Let all be done that *can* be in order to it.

To be *neat*, weeding must be industriously followed up, and all litter that is made in working, quickly carried off. The ground also should be frequently stirred and raked between crops, and about the borders, to give all a *fresh* appearance. There is a pleasantness to the eye in new broken earth: and when there are no flowers left in the borders, this gives an air of culture, and is always agreeable: The observation is particularly meant to apply in *autumn*, that the garden may not become dreary *too* soon, and so bring on winter before its time. An *Asparagus fork* is expeditious and useful in this case; but it must be slightly used, lest it disturb the roots of plants too much. Vegetables should not be suffered to rock themselves by wind, so as to form holes round their stems, but be well earthen up (49) or otherwise supported.

Trees and *shrubs* should be constantly freed from suckers and dangling shoots, and wall trees ought to be regularly kept in order agreeable to directions in the section, *On pruning*.

Let *gravel walks* be kept free from *weeds* and *moss*, often swept, and well rolled after rain. If there is quantity of gravel enough in the walks to relay, or turn them up every spring, or once in two years, it will thoroughly clean them, and make them appear lively. *Moss* may be either scraped off with a trowel, or some such instrument, or rubbed off by repeated strokes of a broom not quite new.

Grass plats and *walks* should have their edges occasionally cut, and be mowed, as often as there is the *least* hold for the scythe, for they lose much of their beauty,

beauty, when the grass gets long; leaves should not be suffered to remain on them as it stains the grass; and worm casts should be cleared away.

Edgings of all sorts should be kept in good order, as having a singular neat effect in the appearance of a garden. The dead edgings will sometimes, and the live edgings often want putting to rights; either cutting, clipping, or making up complete. Where there are no edgings, or but weak ones, let the earth bordering on the walks be kept *firm*, and now and then worked up by a line in moist weather, beating it smooth with the spade.

Some *fruits* may need support, by tying their weak branches when they get heavy, to stakes, &c. Rows of *raspberries* and *beans* are kept neatly up in their lines, by putting in here and there a stake, and using packthread lengthwise; and thus will they bear better, and be more conveniently gathered. *Strawberries* of fine heavy sorts, will be preserved from getting dirty and rotten, by tying their stems to little sticks; by this practice the fruit also gets better ripened, and of a finer flavour: Some persons lay tiles, or moss round the plants, when the fruit is half grown; but this is not (generally) so well, only it has the advantage in keeping the ground cooler in a hot season. The first and finest *scarlets* best deserve this trouble.

Flowers should be frequently seen to, to *tie up*, and *trim off* dead and dangling parts. Some of them cannot do without support, and many sorts are made more secure and beautiful by proper ties. If this business is neglected, a heavy rain, or strong wind may come, and lay all prostrate, especially about the *equinoctial* seasons; but weakness, or their own weight, will often bring flowers down.

The *sticks* used for flowers, should be of smooth wood, as *hazle* or *fallow*, or of neat painted slips of *deal*, with or without an ornamental head; white is the best colour, on account of its contrast with the leaves.

New *bass* wetted, fine soft *packthread*, or green yarn are proper for the ties, which should be twisted first round the stick, and then round the flower: let the ends of the string be cut off close. The sticks should have smooth and sharp points, otherwise they may damage the roots, and will not hold so fast in the ground; thrust them in as far from the stem as conveniently may be, and let attention be paid to *bulbous roots* not to go so near as to wound them. Do not think of forcing all the branches of a large bushy head to a single stick; but let two or more be used, as may appear necessary, observing that there is something of an equality of size in the sticks used to the same flower.

Some persons are very *incurious* about their flower sticks, which may rather be called *stakes*, even when applied to the smaller sort of plants. Sticks may also be too weak for large ones, and a due *proportion* is therefore necessary to propriety and neatness.

Decaying flowers should be timely trimmed or removed, and *perennials* should be regularly freed from the parts running to seed, (except so much as may be wanted) as the production of seeds weakens the root much; sometimes even causing death, and thus many curious *perennials* have been lost, especially the first year of planting them. To preserve any particular sort therefore, let the stems be cut down as soon as the flowers appear to be going off, or to secure the root in strength, let them not flower at all the first year.

Vegetables decaying are offensive, and those prematurely *spindling*, and superfluous ones, sprouts, &c. running for seed, should not be suffered to continue in the ground (as they often are) to exhaust its strength, and look unsightly.

The management of a garden (summarily speaking) consists in *attention* and *application*; the first should be of that wary and provident kind, as not only to do well in the present, but for the future; and the latter should be of so diligent nature as (willingly) “Never

to defer that till tomorrow which may be done to day."

—*Procrastination* is of serious consequence in gardening; and neglect of times and seasons is fruitful of disappointment and complaint. It will often happen, indeed, that a gardener cannot do what he *would*; but if he does not what he *can*, he will be most justly blamed, and perhaps censured by none more than HIMSELF.

SECTION V.

OF PROPAGATION.

PLANTS are propagated by *seeds, suckers, slips, offsets, divisions, cuttings, layers, and grafts.*

By *seed* is the most general method of propagation, and plants raised any other way are seldom so fine. Those plants from seed which have never been removed, are commonly handsomer, and come forwarder, than those that have been transplanted, provided they were sown in a proper soil and situation.

As upon seed being right in kind and good in nature, depends the desired success, care should be taken to procure the best, and no temptation suffered to prevail for the use of an inferior kind, or of one only suspected of being so, if it can be helped; for to cultivate a soil, and use a wrong or defective seed knowingly, is folly indeed!

The *largest* seed of the kind, plump and sound, is to be chosen being well ripened and kept from injuries.

of weather and insects: for, as the largest animals produce the most profitable stock, so it is in vegetables; which directs the gardener always to save seed only from the forwardest and handsomest uninjured plants. As in animals the young may be stunted by bad management, and defective food, so in vegetables, the seed being good will not be alone sufficient, if the soil and culture be not right.

Commonly speaking *new* seed is to be preferred to old, as growing the more luxuriantly, and coming up the surer and quicker. This circumstance induces some private persons to save their own seed (a practice not however altogether to be recommended) that they may not be *deceived* in buying old for new seed; a trick of trade, it is to be hoped, not practised by *every* seedsman: Yet a little mixture of *old* seed is sometimes proper, because the new is perhaps cut off, and the old saved, by being a day or two later in coming up.

If *old* seed is knowingly sown, some allowance in point of time must be made. *Peas* and *beans* of two years old, are by some preferred to new, as not running so much to straw. See *cucumbers* and *melons*, section 14.

As to the *age* of seeds, at which they *may* be sown and germinate, it is uncertain, and depends very much *how* they are preserved. Seeds kept from the air and moisture by being buried deep in the ground will continue a great many years without corruption. *Peas* and *beans* will germinate very well at seven years of age; but the seeds of *lettuces* and *kidney* beans, and some others, are not to be depended upon after a year or two; and though generally speaking the smaller seeds are of the least duration, yet their maintenance of vegetative power depends much upon the *texture* of the seed, with respect to its coat, and the oil it contains, &c.

The *saving* seed is hardly to be recommended. Things running to seed give a garden a *rude* appearance, often occupying ground that is wanted, and might be used to better purpose; and the case often is,
that

that feeding plants (in private gardens) are *neglected* in some measure, or destroyed by birds, and come to little at last. Perhaps they are not saved from *proper* plants. It is a particular business to raise seeds for sale, and (generally) they are best had from those whose province it is to deal in them.

Against our *own* seed, there is this to be observed, that it is a received *maxim* to procure seeds of esculents from a different soil and situation, or at least to *change* them, as being apt to alter or degenerate, if repeatedly sown in the same place. It is proper, however, for private persons to save seed sometimes, in order to secure that of any *particular* sort, that it is judged may not be got so true and good. Yet here perhaps the busy *bee* or *wind* may interfere, and disappoint expectation; for if there is any thing of the like kind in a neighbouring garden, these instruments may carry the *Farina* of that to our charge, and contaminate it, so as to produce a spurious offspring, which is very frequently experienced in the *cabbage* tribe. Now this cannot in a *great* degree happen with those who raise seed in extensive pieces of ground occupied with the *same* sort of vegetable.

Seed of *vegetables* should be saved from fine forward plants, secured from rocking about, when they get tall; guard them against birds, gather them regularly as they ripen, lest they shed and are lost, and keep them dry. *Flowers*, it may be proper to save the seed of, and it is little trouble. The sorts may thus be better depended on, and the small quantity wanted of each kind makes it hardly worth while to buy, if we can raise them ourselves, or get them of a friend; no single flowers should be suffered to grow in a garden where there are double ones to bear seed, as *larkspurs*, and *holyhocks*, for the *Farina* of the singles transported by *bee* or *wind* will spoil the seed of the doubles. Such single flowers should be taken up as soon as ever discovered to be so. It should be a rule for *flower seeds*

in general to be fresh from year to year; though if kept dry, and from much air, many sorts will grow that are older: curious flower seeds are kept well in vials: others may be in small draws, and some kept on shelves in their pods.

Seeds may be forwarded for sowing by various ways of procuring a germination before they are put into the ground. In *summer* it has not been unusual to steep both *broad* and *kidney beans* in soft water, or milk and water, about twenty-four hours, to forward their growth, and to ascertain their vitality. If the ground is very dry when these seeds are committed to it, either steeped, or not, it is a good way to make drills or trenches to plant them in, watering them well first, and then pressing the seed in a little. Any sort of the *broad beans*, or even *peas*, may be forwarded, when ground is not for the present ready, by laying them in damp mould, in a garden pot, or otherwise, a layer of earth, and a layer of seeds, &c. and they may be put into trenches (with care) when the radicle has got some length, the mould being light, and the work finished by a gentle watering.

The smaller seeds, as *carrots*, &c. may be prepared for sowing, by simply mixing them in a little moist sand, or fine earth, taking care that they do not lie longer than the usual time of their beginning to sprout: but this practice need only be adopted for seeds that are long in coming up, and then there is some advantage in having them to sow in a state ready to strike immediately, on fresh dug earth.

The *season* for committing seeds to the ground, should be as *early* as the nature of the plant to be cultivated will bear; for the forward productions, which come without forcing, are the best as to size and fruitfulness, if they meet with no material check from weather. It is the proper *ambition* of gardeners also, to have some of the *first* of each kind of vegetables and fruits, and thus to vie with others.

Let

Let this direction for *early* sowing be understood, not only of *spring*, but *autumn* crops; that the plants designed for winter use, or to stand for spring, may be strong, and well established in the ground: Though for those designed for *spring*, it is advisable to have two or three different sowings; for *lettuces* (as an instance) that are forward, will sometimes fail when backward plants shall do well.

To be *sure* of a crop, and in some things a *succession* of crops, various sowings should be made through the year, at all times that are not too unnatural as to season; for it is an object in gardening, not only to have early and late productions, but never to be without what *may* be produced. Every sowing that is made (the early ones in particular) should be *noticed* in time, whether it is likely to succeed, that the work may be repeated. But a little *caution* is necessary, that this business be not *over* done; for though there may *seem* to be a sufficient distance of time in sowing for *succession* crops; yet they tread sometimes upon the heels of one another so *fast* as to occasion a disagreeable superfluity: This is often the case in *peas* and *beans*, in the height of summer, and especially if a hot season: this caution is the more necessary, where there is no ground to spare, or but few hands to cultivate it.

Sowings should be generally performed on *fresh* dug, or stirred ground. The digging should therefore be done as near the time designed to *sow* as can be. There is a *nutritious* moisture in fresh turned up soil, that softens the seed to swell and germinate quickly, and nourishes it with proper aliment to proceed in its growth with vigour, but which is evaporated soon after from the surface. If the ground, indeed, turns up *raw*, or wet (as early in the spring it is apt to do) a little time must be allowed it to dry, and so also if rain falls first. In this case, seed should be sown as soon as ever the ground may be trampled on not to *hang* to

the

the feet, for when the soil is too wet, it binds and does harm, especially heavy ground; thus in this work, and every other in the way of gardening, there is a *nicety* of time to be observed, by those who would do their business well. It is to be observed, however, that sowing in *drills*, or on *beds* that are not to be trampled, the moisture of the ground is rather an advantage, provided, in the last case, that the ground will admit a rake, and the soil is not *too* wet to drop somewhat loosely about the seeds.

The proper *depth* at which seed should be sown, is to be carefully observed: if *too* deep, they will either rot, or not vegetate, or thrive well; and if too shallow, they are liable to be injuriously affected by frost, wind, drought, or birds; but of the two, rather too shallow, than too deep, is best, and this we are taught by *nature*, whose sowings are mostly superficial.

The smaller the seed, the finer should the soil be, and the less also the covering; so that, while some, (as the seed of *celery* is to be but barely covered, others as *peas* and *beans*) may have a depth of two, three, or four inches. But some regard is to be had to the *season* and *soil*:—in a warm season, and light soil, sow deeper, and the contrary shallower.

The *quantity* of seed sown, is a thing to be attended to with some exactness. Small seeds go a great way, and require a careful hand to distribute them; for though sowing a little too much be a trifle as to the value of seeds, yet to have them come up *crowding* thick is an evil. To sow *evenly* as to quantity, is an object of practice worthy of care, as it secures a better crop, and more easily managed in the thinning. If the seed is suspected, sow thicker; poor land will require more seed than rich.

It is not generally advisable to sow *several* sorts of seed on the *same* spot, as some persons are accustomed to do. The gardeners about *London* follow the practice; as profit is their great object, and not neatness or propriety.

priety. On the same piece, they sow *radishes*, *lettuces*, and *carrots*; the radishes are drawn young for the table, the lettuces to plant out, and a sufficient crop of carrots is left, for carrots should not be very near to grow big: this is as reasonable a combination as any that is made; but still, if not short of ground, each kind separate will be found best. In defence of this mode of culture, it is said, if one crop fails, the others may do, and there is no loss of ground or time; and if all succeed they do very well. *Radishes* and *spinach* are commonly sown together by the common gardeners, and many *manœuvres* of inter-cropping are made by them, as sowing, or planting, between rows of vegetables that are wide asunder, or presently to come off, or in the alleys of things cultivated on beds. But this crowding mode of gardening will not be imitated by private families, except there is a want of room to bring in a proper succession of crops. Some little things of this sort, however, may well be done; as, a piece of ground new planted with *horse-radish* may be top-cropped with radishes or spinach, &c. A thin crop of *onions* upon new asparagus beds, may also take place, drawing them while young from about the plants.

The proper *covering* for seeds at broad cast being determined on, as to depth, let the ground lay the rougher, the deeper the seed is to be buried; and if it is to be scarcely covered, rake the ground first very level and fine. All seeds come up best when moderately pressed with the earth; for if they lie too lightly in contact with it, cold and drought more easily affect them, and when once seeds begin to germinate, they are impatient of both. To trample seeds in is on the whole better than any other pressure. According to the *depth* it is intended to cover seeds, the feet should be set wider or nearer, i. e. the closer for the less covering. Begin to trample on the outside, walking regularly, lightly, and steadily round the piece, till the middle be arrived at in the *finish*. This done, lay all immediately

immediately and neatly level with a wide rake, drawing off stones, &c. but do it lightly, to avoid driving in the teeth of the rake, which would remove the seed, and make it come up irregularly.

Patches, or small pieces, are sometimes sown without trampling, particularly of *flowers*, by drawing some of the mould on one side, and then sowing and covering the proper depth with what earth was drawn off, adding a little more, if necessary. In this case, if the soil is not heavy and wet, press the surface with the rake head, spade, or otherwise. Seeds sown in *drills*, or *rows*, are seldom pressed, but they should be, especially if the soil be light; and even beans set by a *dibble*, are best to have the earth pressed about them with it, or afterwards with the rake head, and they will support themselves more erectly, for the least wind rocks them about when in loose holes: In a light soil, the best way is to lay them in a trench, and trample firmly in.

Directions for *thinning* seedling crops, and pricking them out in time, were given in the last section. Let this business be done properly, and prick out enow, that there may be some to spare; perhaps a neighbour may be obliged thereby, and at any rate it is best to have plenty, lest accidents happen.

Propagation by *suckers* is a mode of culture rather peculiar to *trees* and *shrubs*. The things to be observed in this business are, to take them up with some care from the mother plant, so as not to injure its root, nor the sucker's own root, by pulling it up without properly loosening it first. The earth should be moved aside by a trowel, and then the sucker cut off by a *knife*, and not with a *spade*, as is common. Of those hardy things that there is plenty of, this rough way does not signify much, as to the sucker; but it may injure the root too much that it comes from. Wherever a root appears barked, the part below should be cut off. If it is desired to succeed well, in propagating
by

by suckers, consider that all young roots are tender, let them be trimmed to form, and planted immediately, or at least let them be covered with earth or laid by the heels, as it is called. Suckers with poor roots, must have their heads reduced accordingly.

Propagation by *slips* is of two sorts, either from the root, or *stem*; and several sorts of *flowers* and *herbs* are increased this way. When from the *roots* (if the whole is not taken up) move the earth carefully aside, and slip off by a pressure of the thumb and finger, and be cautious of hurting the fibres of the slips, planting with fine and good mould about them. Take off slips from the *stem* carefully by a push of the thumb, and not too many from the same plant, as it is apt to injure the place a little by tearing off some of the wood. *Slips* from the *stem* are to be considered as *cuttings*, and treated accordingly. They take more certainly, and make better roots than cutting; but are apt to injure the part from whence they are taken.

Offset is a term sometimes applied to *slips* from fibrous roots; but more properly so from *bulbous* roots, which put forth many offsets. These are slipped away at the time they are taken up for removal or replanting, and commonly take two or three years before they bear flowers: dispose of them therefore in a *nursery*, where they may remain undisturbed while they come to a flowering state.

Division of the roots is a way of propagating many sorts of plants. To this end (of course) they must be taken up, and then either carefully pulled, or cut asunder with a sharp instrument; as the case may require. It is not safe, however, to divide such roots into very small pieces, (especially if cut), as then they are apt to die; but leave them of a size sufficient, not barely to secure life, but to form immediately a handsome head. The general season for thus *splitting* fibrous rooted plants, is *October*, but it may be done early in the spring.

Cuttings

Cuttings of a variety of woody plants will grow, and many trees and shrubs are propagated this way; but their sap must be of a watery nature, as those plants that are gummy will not strike, (or rarely) though ever so much care is bestowed, or time allowed them. The texture of the wood of cuttings must be somewhat soft, as hard wooded ones will not grow. Cuttings should be rather short than long, and kept *steady* in the ground. If they are planted where there is any likelihood of their being disturbed, they may be tied to a stick, well fastened in the earth.

The *season* for setting *slips* and *cuttings* is for some things summer, as *wall-flowers* and *myrtles*; and for most, from *October* to *March*, but (in general) the sooner the better. It has however been said, that *spring* is the best time for *all*, and that the sap should be in motion first. This is at least true of some things, as cuttings of the *vitex*, or *chaste tree*, (though hardy) are found to do best in spring; and all cuttings from plants of a delicate nature do so.

Cuttings should be of well ripened wood, and have the earth pressed to them, the whole length that they are in the ground; i. e. from four to six inches. Cut them with a sharp knife slopewise, and plant in a good soil, and in a situation where they only have the morning sun; and keep them cool (not wet) by occasional watering in dry weather.

Laying of branches is a mode of propagation, that may be adopted for almost all forest trees, and several sorts of fruit trees and shrubs; i. e. all that will grow from cuttings, and many that will not. *Layers* are less rampant, and more fruitful than suckers; and "those who are curious, and find a seminal variety of any tree, or shrub, that is remarkably different from the original, the only way to have it preserved genuine is to convert it into a *stool*, (by cutting down) and raising plants by *layers*." They are made of the lower branches of the plant, and must be young and pliable,

to

to bend down without breaking, to the depth of four, five or six inches in the ground, (as the soil is light or heavy) at which they must be held securely by good pegs; and if they cannot be brought down sufficiently deep, some earth may be raised up to them.

Let the ground about layers be kept *cool* by occasional waterings, and laying some *moss*, *turf*, *litter*, or rather small *pebbles* about them, which will not harbour insects. The part out of ground may be supported directly by a tie to a stick. It is a good way to *slit* (with a sharp knife) the part at the peg, as in *carnation layers*, a little more than an inch; and some *prick* a few holes about the part (at a joint) with a blunt awl, to help the layer to strike root. For the *hard* woods, some gardeners make several slits, or chips, in the part layered in the earth, and bind the layer rather tight, just above it, with pliant wire; and *soft* wooded layers are sometimes twisted to crack the bark, in order to help the part to strike quickly. Generally layers should be shortened to six or eight inches above the ground, but some gardeners chuse to do it to two eyes, that the produced shoot, or shoots, may be stronger.

Where there are no branches low enough to be brought into the ground, (and it is not thought good to head down for the production of low shoots, or suckers) plants may be layered by fixing a broken *pot*, or a *box*, with a slit in the side, to the height necessary to lay in a branch. A branch also, if long enough, may be thrust through the hole of a garden pot upwards, then filled with earth, and supported by some contrivance, and shaded by some means, and in both cases water frequently. Take care not to injure the buds in drawing through the hole of the pot. By this contrivance rooted plants being procured in *pots*, may be turned out with the earth about their roots undisturbed. A branch of a *vine* thus layered in *November*, may be next year cut off, when the *fruit* is ripe, brought in the pot to *table*, and afterwards planted out.

The

The *season* for layers is (generally) the same as for cuttings, and some sorts will be well rooted in a year, but others will require two, and sometimes three years before they will be fit to be moved. Those, however, that are *slow* to strike should be layered as soon as ever young shoots are forward enough, which may be in *July* or *August*. This practice is particularly recommended for the *phyllerea* and *alaternus*. Cut off the leaves of the part that goes into the ground, because such young wood will not well bear stripping. For propagation of fruit trees by *grafting*, see the two next sections.

SECTION VI.

OF A NURSERY.

THERE are so many *nursery-men* ready to supply our wants, that the *necessity* of a nursery is in a great measure done away; it affords, however, employment, amusement, and an opportunity for exercising ingenuity, and that particularly in the way of *grafting*.

By means of a *nursery*, trees are ready upon the *spot*, to be transplanted without damage to the roots from being long out of the ground, and the climate and soil being the *same* in which they are raised and are to grow,

grow, and to fruit, there is a sort of certainty of success, that could not otherwise be had. There is also a great advantage in raising trees, in a very material point, in an assurance of having fruit that we *know* we like, by getting grafts, or buds, from trees of which we have tasted and admired the fruit.

In a nursery, *stocks* may be raised for fruit trees, *shrubs* propagated by *suckers*, *slips* and *cuttings*, and *flowers* of the biennial and perennial sorts may be sown, bulbous offsets planted, and thus a *stock* may be readily provided for furnishing any part of the pleasure ground. For all, or some of these objects, a spot might be allotted, if it were only the cool corner of a large garden.

Supposing even only a little spot is made use of for a few *flowers*, *shrubs*, &c. let them be duly attended, to weed, thin, water, trim into form, support, shelter, and in short nurse, but yet not to bring any thing up tenderly, as too much, or long cover in winter, exposes to risk when it is taken away; the plants not being able to bear then even a moderately cold air. A low part of the garden, that has not too much sun, is best for a nursery; if not overshaded with trees.

Suckers, *slips* and *cuttings* of any kind, should be attended to for forming a proper *head*; shortening the shoots, and keeping a clear stem below, and the roots free from suckers. Two years commonly fit *suckers* for planting out, and three years *slips* and *cuttings*. It is a good way, to fasten the two latter, if not the former, to sticks, that the wind, &c. may not loosen them, and prevent their rooting.

Large plants, as young *trees*, &c. should be tied to stakes well fixed, at first putting out for the same reason. These should be seen to from time to time, that they remain fast; as also, the mats or cloths, that may have been put over hoops to shelter exotic seedlings, &c. from heavy rains, or severe frosts, for the wind has great power over such coverings.

The

The *soil* of a nursery should be dry, free and in heart; but not *much* enriched with dung, lest a rankness of food give too great a freedom of growth, and a *habit* in the plants, which not being indulged by a like soil afterwards, disappointment ensue. A *dungy* soil also encourages worms and insects, to the injury of seedlings, and makes young plants more liable to be cut off in a sharp winter; too rank a soil, also, prevents the juices of plants from being properly digested, and so they are less fruitful.

On ground designed to be sown, or planted in spring, if it needs refreshing, lay on a little well consumed dung towards winter. See page 46.

A *nursery* should be laid out into *beds* of about four feet wide, with *alleys* of about two; and thus all the work of it will be done conveniently, and the plants will have free air to strengthen them. In the alleys may be buried some dung, which will be at hand, and useful, when *consumed* by time and turning over, to dress the beds as they may need it.

Stocks for grafting fruit, are raised from *suckers* of plums, cherries, codlins, crabs, pears and quinces; and sometimes from *cuttings* of codlins and quinces; but those stocks raised from *seeds* and *stones* are much best, if we consult freedom of growth. If *sucker* stocks grow ever so well, they are apt to put forth suckers, which is not only a troublesome circumstance, but exhausts a tree, and prevents fruitfulness. It is to be understood, that the *graft* will (in some measure) partake of the nature of the *stock*; therefore soft, mealy fruit, ought to be propagated on austere stocks, and the contrary; tender, delicious fruits designed for *forcing*, should always be on smart stocks, or they become insipid.

Though *crab* stocks for apples are mostly used, yet the ripe black seeds of any other *smart* eating apple may be sown, either in autumn or spring. Sow in autumn, (*October* or *November*), and if this sowing fails, the

the spring may be adopted towards the end of *February*. At these times, the *well* ripened seeds of pears, or stones of plums, or cherries, may be sown. The stones of any sort of plum, (damsons excepted) produce stocks for *apricots*, *peaches* and *nectarines*; and though the *white* sorts are commonly preferred, the *red wheat-plumb* is excellent for the *apricot*; of *black* plums the *muscle* is the best.

Those *seeds* or *stones* that are sowed early, or are to be kept through the winter for spring sowing, (which many prefer), should be preserved from air in dry sand: Let them be put in a box layer upon layer, three or four courses, covering the top three inches, and guard against mice. Nuts, acorns and chesnuts are put in the ground at the same time, as also the seeds of various sorts of *shrubs* and *forest trees*. The tenderer sorts of shrubs and trees are indeed best sown in *March*, or beginning of *April*; and a gentle hot-bed would be of advantage, to bring up the seeds with certainty.

The *seeds*, or kernels of apples and pears may be sown in *drills* a full inch deep, a foot asunder, and scattered thinly in them, pressing the ground a little to them; or sow at *broad cast*. But take care not to use the seeds of fruit that has grown on a *hollow* tree, for they will not vegetate.

The *stones* of any fruit should be sown at near two inches depth; and *nuts*, &c. at three or four. Stones and nuts must be set thin, and rather (as of some advantage) the small end upwards, for here the shoot pushes out, or they may be laid flat. If the beds are sown all over, cover the seed with mould previously drawn aside in the alleys; but drills have the neatest appearance, and some *little* use may be made of the spaces between them the first year.

Prepare the *beds* by digging the soils well to a full foot in depth, and let the surface be made fine: thus will the roots strike down freely to preserve themselves from

from drought, wet will drain away, and the young plants push straight upward: four feet beds are best.

The *enemies* of seed beds must be guarded against, as *poultry, birds, dogs, cats, mice* and *frost*; the latter by covering lightly with pea haulm or wheat straw, and the former by furze, thorns, or brush wood, and traps. If any *hares, or rabbits*, get at a nursery, they make sad havock in sharp weather, by barking the young plants; therefore, guard against them, and larger animals by good close fences, which will also keep out sharp winds.

During the *first* year, they should be kept moderately cool, by *watering* in dry seasons, or laying *moss*, or some short litter, over the beds. And as to *weeding*, though they must not be smothered, yet some *small* weeds may be suffered to grow in summer, as they help to shade the plants, and keep the ground cool. Seedling trees are very apt to suffer by drought. Thin them in the summer, after rain, from two inches to three or four asunder, according to their nature; and at the end of the year (i. e. when a year old) thin to from nine inches to a foot asunder: those drawn may be planted out at the same distance, or at least the better of them; and those left should be re-planted the second year, lest the roots strike too much downwards. The first *winter*, they ought to be protected from severe frosts, by some light dry litter, which remove in mild weather. At all times, except winter, if the roots of young plants are disturbed by any means (as pulling up strong weeds, hoeing, &c.) settle the mould about them by a good watering.

Sticks designed to grow for *full standards*, should be set in rows, three or four feet asunder, and at one foot and a half in the rows; or if set at the before-mentioned distances, they may be transplanted again, another year or two, wider. Rows for *dwarfs* need not be so far asunder as those for *standards*: but before they are planted, the side shoots must be trimmed off

and the *tap* roots shortened, in order to procure a clean trait stem, and a full root.

Protect from *frost* all new planted trees, by laying *chafe*, *bean*, or strong wheat straw between them; which may be secured by trampling or laying stones over it, or by pegging down. Seedlings, or stocks, planted out in *spring*, should be protected from drought also in the same manner, a month or two, (or longer,) and afterwards occasionally watered in dry weather.

The *second* year, in *October*, those left at about a foot distance in the rows, may either be taken up and re-planted, cutting the *tap* to make bushy roots, or, taking out every other, left to grow of a size fit to *graft*, or *inoculate* there. This year, only the stronger side-shoots from the stem should be cut off; for the weaker ones will help the stem to thicken, by detaining the rising sap, and imbibing moisture from the atmosphere to feed it; and the getting a strong stem is a material thing, especially for standard trees. Do not stop the leading shoot.

Stocks of any kind will be three or four years growing, or two or three from planting out, before they are fit for grafting; and if strong stocks are wanted, (as for standards,) more time will be necessary: The bulk of substance may be from a quarter, to an inch, or more diameter. As *dwarf* trees are grafted, or inoculated within five or six inches of the ground, much less stocks will do for them, than for *standard* trees, which are grafted at so many feet high; i. e. if for all-sized trees.

Stocks that are naturally of a slow growth, are collected for dwarf trees, that they may not mount the wall, fill the espalier, or increase to a large head too fast. So for *apples*, instead of *crab* stocks, which are commonly of free growth, those raised from the seeds of the *paradise* apple are recommended as growing dwarf, without danger of losing some of their fibres, one of which can be spared.

E

In

In default of these naturally dwarf-growing stocks, those raised from *suckers* are sometimes used, as less likely to grow off freely than seedling stocks. *Layers* also are proper for dwarf stocks, and they are commonly to be had from the *codlin*; all layers must be carefully taken up to preserve the roots.

For *pears*, dwarf stocks are raised from *quince* cuttings, layers, or suckers; but as quince shoots are commonly of a weak and crooked growth, the stocks from *pear seeds* are mostly used. But suckers may be obtained from *pears*, *quinces*, &c. by cutting down an old tree within a foot of the ground, and these being planted out for a year or two, become good stocks. If the suckers, or shoots, lay high, they may be earthed up to induce them to strike. But *suckers* will be often forced, by only cutting off the *top* of an old tree, which is an experiment to be recommended, (in *pears* particularly) as there will be formed a *new* head, and an opportunity given to *graft* for another, or a better sort. And if there are no suckers, there may be low-placed shoots proper for *layers*, of those trees that will thus strike, and most trees will, if not the first, perhaps the second year.

Stocks from *suckers*, for dwarf *plums* and *cherries*, are in *one* sense better than those raised from stones, as being less free in their growth: and the *common red cherry* and the *black* are to be preferred for stocks, whether as to suckers or seedlings. If suckers of any tree grow at a proper *distance* from the parent stock, they may be grafted or inoculated without removal, till wanted to plant out for fruiting, i. e. in a year or two. Suckers that are for stocks, should always be planted out in autumn, and stand (at least) to the following spring or summer, twelvemonths before they are used. *Apricots*, *peaches* and *nectarines* are grafted by inoculation on plum stocks, but rather on those raised from stones, except for *apricots* it hardly signifies. Stocks of the *wheat plum*, or the *muscle* are the best. *Figs*, *quinces*, &c.

and *mulberries* (as sometimes *codlins*) are raised from *suckers*, *layers*, and *cuttings*, without grafting; but from *layers* is the best method, being more sure than *cuttings*, and more fruitful than *suckers*, and in one year they will be rooted. The season for both *cuttings* and *layers* (a little before or after) is *October*, though *February* is rather better for the *fig*. The *layers* from *fig trees* must not be taken off till the beginning of *March*, as when planted in *autumn* they may die; other *layers* should, however, be then removed.

Medlars are grafted on pear or crab, or service-tree stocks; but more commonly upon medlar and white thorn stocks; though the fruit (on the last at least) is not reckoned so good.

Grape vines are generally raised from *cuttings* and *layers*, (sometimes from *buds*) either in autumn or spring; but for *cuttings* rather the latter; and if the vines are pruned in *February*, or before, lay the *cuttings* by in dry mould or sand, till *March* or *April*. Place the *layers* in the ground, about four or five inches deep, leaving two or three eyes out. The *cuttings* should have three or four eyes in the ground, and only one out, or be about a foot or fifteen inches long, and placed a little aslant. *Cuttings* should have a knot of the old wood at bottom, for those cut off above, though they may strike, will not produce so good, or fruitful plants; they are also best taken from the lower part of the tree, the wood there being the most ripened. Vines are best raised where they are to grow, by opening a hole, and placing two *cuttings* in, one of which is likely to answer. Keep it to one shoot, and cut down to two eyes in autumn. Keep to two shoots the next summer, and prune down to two or three eyes in autumn, and then the vine will proceed with vigour, and bear well.

Chestnuts are raised by sowing those that are imported, three inches deep, and four asunder, in rows six inches apart; where growing two years, let them be planted

out half a yard apart, in rows a yard asunder. When five or six feet high, they may be moved where they are to remain: If the *seed* is good, it will sink in water.

Walnuts are raised from well-ripened nuts, sown either in autumn or spring; and if the latter (which may be rather best) preserve the nuts in their outer coats, in dry sand. These trees are best but once moved, and their tap root preserved, if for *timber*, with the head as entire as possible; but if for *fruit*, the tap root should be shortened, to prevent the tree mounting, and the head may be cut, to accommodate it to the root, as to size. The walnut likes a dry soil, and if gravelly, it does best; and though walnut trees are many years before they come to bear, yet if it were only for the *wood*, posterity would have reason to commend the planter of them.

Filberds are raised from nuts, or suckers, and layers, the latter of which is the best method; or they may be grafted on the common nut tree. The nuts sown in *autumn*, or kept dry in sand till *February*, produce fine trees, but generally *differ* a little from the sorts sown, and make a variety generally for the worse. Nuts like a cool soil.

Currants and *gooseberries* are raised principally from *suckers*, *slips* and *cuttings*, but best from the latter. When from *seed*, it is with a view of obtaining varieties, and hence the many sorts of *gooseberries* in some catalogues. Use *cuttings*, or *slips*, of the last year's wood, from fruitful trees, about nine or ten inches long, and set them four or five in the ground, half a yard asunder; train them to one shoot, (or at the most two,) the first year, and the next head them down to six or seven eyes, when a fine head will be formed the following year, and in the *autumn* they may be moved where they are to fruit.

Barberries are raised from *suckers*, *layers*, *cuttings*, or *seed* sown in *autumn* or *spring*. The latter mode of propagation produces the finest shrubs, with the largest fruit,

fruit, though it is seldom practised, suckers being generally plenty.

Raspberries are almost universally propagated from *suckers*, being always abundant; and as this saves a year, and *seed* produces varieties not desirable, sowing is not to be recommended: This shrub is rarely brought into the nursery to obtain strength. See page 38.

Strawberries are raised from *seed*, *offsets*, and *runners*, but almost universally from the last; plants from *seed* produce the finest fruit, and sometimes a variety that is superior to the original. It should be sown in pots, or boxes in *March*, or *April*. This method is particularly to be recommended for the *alpine*, chusing the largest and most conical for seed.

The young *offsets* of the present year, slipped in *autumn*, or those of the last year (which will be better rooted) slipped in *spring*, will do for plants, cutting off the sticky parts; but the first *runners* are more commonly and properly used; and to have these fine, the runners beyond should be pinched off in time. *Offsets*, early in *spring*, and forward *runners* in summer, (as soon as rooted in *June*,) may be planted out in cool ground, at six inches distance, by way of a nursery, in order for making new plantations towards the end of *September*, or in *October*. This is thought a good way by many, but it is seldom practised: Let the summer plants be well watered till rooted, and suffer no runners to proceed from them. The *common* method is to let the runners remain till *September*, and then, as early in the month as may be, to dress the beds, and select the strong and most bushy-rooted sets for forming new beds: It would, however, be an advantage both to the old stools, and the young plants, to suffer only the first or second runners to remain for the purpose: Thus their own beds will be the *nursery* for them; and except the soil is worn out, (perhaps,) the best. See page 38.

* * * * *

The raising of FOREST TREES is rather beside the purpose of this book. They have been mentioned as to the time of *sowing*, and their treatment is in a great measure the same as for raising *stocks* for fruit trees; so that to those who would do only a little in this way, much more need not be said.

Forest trees are often left to grow thick on the seed bed, and only thinned a little in the autumn following, and so from time to time as they get bigger; but a little thinning should take place in the summer, by *drawing*, when the ground is moist. If the soil that seedling trees are to be planted in be poor, let them be raised in earth somewhat sandy, and at any rate not in a rich dunged soil.

When *young* men take to gardening and planting, it is an happy circumstance, and they should lose no time in the business; for it is a thing that persons advanced in years have often repented of. It produces considerable satisfaction, and a peculiar pleasure, in the evening of life, when a man can point at good trees, and say, "These are of my own *planting*!"—but it were a superior thing to add, "And of my own *raising* too." Let *young* planters resolve, therefore, to raise their own trees, especially of the *forest* kind. "There is no better, or cheaper way of raising woods and plantations, than by sowing the masts or nuts of timber trees, where they are always to *remain*, and this is best done in *spring*."

It is to be observed, that the wild *service*, *hawthorn*, *holly*, and *ash keys* come up the *second* year; but most other seeds of trees the first. *Ash keys*, however, (and probably the others,) if they are buried in a pit with coal ashes sifted fine, or in a sandy earth for a year, will come up the first year they are sown.

To have *good seed* of the various kinds, is a thing too little attended to; but on which evidently depends much. It should be well-ripened, and the produce of fine healthy trees from the top, or outside branches; withal,

withal, not growing near dottrel, ill-conditioned ones, the *farina* from the flowers of which might impregnate those of the good tree, and give its seed a degree of degeneracy. Let *oak acorns* be thrown into water, and those only used which sink quickly;—they should be kept a while to harden, but not too long out of ground, as they soon sprout.

In the *management* of a nursery, the young plants of trees and shrubs should be *dug* round once a year, by a downright cut of a sharp spade, a little distance from the stems, nearer or farther off according to their age, to shorten straggling roots, and produce new ones more at home: Let this be done in *October* or *February*; the former time is best for the older plants, and the latter for young ones. The spade also may be drove under them to cut off the tap roots, where it is not an object to preserve them. By this practice, a good, full, brushy root will be obtained, fitting plants for a prosperous removal; but it should be done a year before transplanting. It improves also the soil. *Evergreens* in particular would be safer to move, being thus treated; and if only to be moved from one part of the grounds to another, balls of earth will hold well to them. Immediately after the operation, a sound watering will be proper to settle the earth to the roots, except the ground be quite moist; but this work of digging a nursery is best done when the ground is dry.

SECTION VII.

OF GRAFFING.

GR^AFFING, (or grafting,) is the insertion of a *cion* into a *stock*, or *stem*, raised for the purpose, and is necessary to the enluring of *good* fruit; i. e. to have

the *same* (or at least with little difference) produced on the new tree, as that of the *old* one from whence the graft was taken: It is sometimes performed on the *branches* of trees, and may be on the *roots*, a piece being raised out of the ground for the purpose.

If the *seeds* of fruit were left to grow up to trees *without* grafting, they would produce a *different* kind from that they came from; by chance a better, but most commonly a worse. The *varieties* of fruit we have, were obtained partly from seedling stocks, without grafting, and partly by an accidental difference, that the stock, or soil, may have given.

Grafting is like planting upon a plant, for though there is a union of the parts, there is in fact little other communication than a root has with the ground. The cion, or bud, draws nourishment from the stock, but no other than is properly adapted to its own peculiar pores, which by a chemical process (suppose by fermentation in its little bladders, or cells) it alters, so as to become exclusively its own. A great variety of fruit is produced by graft-planting from the same kind of stock, (and that perhaps a mere *crab*,) just as a great variety of plants are from the same soil: By this means also, some *forest*, and many *ornamental* trees and shrubs are propagated, and thus their particular varieties preserved, as in all the variegated sorts, &c.

The art of *grafting* is a very curious discovery, and though it requires some ingenuity to perform it, a few trials may make it familiar, and it will prove an agreeable source of amusement and satisfaction. By being able to graft, young trees may be always at hand for replacing old, or unsuccessful ones; and the pleasure of obliging a friend from our stock in *this* way, is peculiarly gratifying.

Skill in this ingenious art is clearly best obtained by *seeing* the work performed; and at first trial, to have an *adept* at the elbow, would be a great advantage. There are few *gardeners*, (even by profession,) how-

ever,

ever, that practice this work, owing to the great number of *nurserymen* ready to supply trees. But though they raise fine trees, much disappointment has often happened in dealing with them (particularly in the *sort*) which might be avoided, by a man's being able to raise good trees for *himself*. Directions precisely descriptive of the business of *grafting*, are therefore here attempted, and if once understood, trials should be made without minding the discouragement of a few failures; for practice will make perfect.

Proper *stocks* being ready, and cions, or buds procured, there will be wanting a good sharp narrow-bladed *pen-knife*, and a sharp smooth-edged *pruning-knife*, with some well wrought *loam*, or *clay*, and some good new *bass*, or strong *yarn*. The clay should be made up as mortar, mixed with short hair, or fine chopt hay, with a little horse dung, and prepared a day or two before-hand; or longer the better, being beat up afresh with a little water every day.

The first thing to be done is, to cut off the *head* of the *stock* at the proper height, and in a fair part of the bark, making a smooth flat top: If the stock is too strong for the knife, and a *saw* is used, it must be smoothed with the knife after. The properest size for stocks, is from half an inch to an inch diameter, a little more or less, however, may do. When a stock is too little, the cion is apt to overgrow it, and when too big, the cion does not so well, or so soon, cover the stock, as might be wished: yet stocks of *any* size can be used by one mode of grafting or other.

Dwarf trees are to be grafted within six inches of the ground, and *standards* as high as the stock will well bear, considering whether they are to be half or full standards; the former at about three or four feet, the latter at five or six. But trees designed for *standards*, may be grafted, or inoculated at a lower height, the *graft* being trained to the desired length, by keeping it to a single stem.

The *cions* should be *healthy* and *strong*, (not however of luxuriant growth,) and taken from the *outsides* of fruitful trees, where the juices of the wood have been properly digested by sun and air: they should be taken (if it may be) from trees just in their prime, or at full bearing, and not before. Let them be cut two or three weeks sooner than wanted, and if kept longer they may not hurt, for they had better be cut a little too soon, than too late, at full length, without any side shoots.

Let the *cions* of *pears*, *plums*, and *cherries* be cut from the middle to the end of *January*, and at farthest not beyond the middle of *February*; the *season* must, however, somewhat govern. Keep them all over in *dry* mould, close under a south wall, or some shelter, covering them with straw in wet or severe weather. Some preserve them in a cool room, where they will do without mould, but it would be better to set them up an end in a garden-pot, with mould, or sand, nearly dry.

Cions cut *early* are prevented from getting too forward in *bud*; and if the buds begin to start, and look white, they seldom take. By having them as long as they may be kept before used, the sap of the stock gets in forwardness; for it must first begin to stir, and so be ready to push itself quickly into the *cion*, (now somewhat exhausted,) to form a union with it.

The *middle* of *cions* is fittest for the purpose; but do not cut off the *tops* till they are brought out to graft, for they keep best in length. If *cions* are to be *transported* to any distance, let their ends be stuck two or three inches in clay, and so matted round in a bundle; or, if wrapped round with a fine hay rope, and smeared over with cow dung, clay, or a strong earth, they will not soon wither.

Some gardeners say, *cions* should be *only* of the *last* year's growth, and others, that the wood of the year before is best; but it is so far a matter of indifference, that

that they will take much older, though (perhaps) not so certainly. As a medium way, if a little of the former years wood be cut with a cion of the last, and this elder wood be used for the part grafted, it will be found to answer, in covering the stock sooner; though it must be acknowledged, that all *new* wood is the common practice of those who raise trees for sale; which circumstance is ordinarily a presumptive proof of right. However, if wood of a year's growth is not *strong* enough, then, at least, some of the old wood ought to be cut with it: and the bigger the stock is, the more this practice commends itself, as the *barks* will be somewhat more equal in thickness.

Proceeding to *graft*, take off a little of the lower end of the cion first, and then cut it in length, so as to have three or four eyes to appear above the claying: two eyes will be sufficient for a standard, but four is better for a dwarf that is to be trained. In cutting cions into lengths, let the top eye be just in front, or just behind, but rather the former. Use not (except upon necessity) the *upper* part of a cion, as the wood is too *raw* for the purpose, and will be shrivelled; yet *strong* cions (properly inserted) seldom miss through drought: indeed they will take sooner than if *quite* fresh cut.

The *time* for grafting is usually from *Mid-February* to *Mid-March*; but in a forward season sooner, and in a backward one sometimes later.

CLEFT-GRAFTING has been the most common method of propagation, and though it is not the neatest, yet it is a certain and easy way to young practitioners. The stocks for this mode of grafting should be strong, about three quarters of an inch diameter, or more if it so happen; but it may be used with very young stocks, having cions of like thickness.

Cut off the *heads* as before directed, so as to have (on the sunny side) a smooth part in the stock, where the cion is to be placed; and cutting a part of the stock

off flopewise, opposite to this place, leave the top, or the crown of the stock, about half an inch wide.

Then *cleave* the stock with a strong knife, or thin sharp chisel, about two inches deep, as near the middle as possible, so as not to divide the *pith*, and if any roughness appears in the slit, smooth it off with a pen-knife; but something of the *wedge* kind must be put into the slit to keep it open to receive the cion, leaving proper room to put it in. Cut the cion on each side to the form of a *wedge* at bottom, an inch or more long, making that side which is to be placed inwards in the stock, thinner by about one third. Put the cion in, so that its bark, and that of the *stock* be level; and if the bark of the stock be thick, let the bark of the cion sink in a trifle, as the current of sap that unites them, runs betwixt the bark and wood. The *cion* being placed, take the wedge out that kept the stock open; yet if the stock be so strong as to *pinch* the cion *too* hard, ease it by a little bit of dry wood to be left in the cleft; so, however, as not to loosen the graft, which must be held firmly: or if the stock be very strong, the wedge of the cion may be nearly of equal thickness, inside and out, which eases the barked part.

The *graft* must be nicely *whipped* round with wet *bass* pulled tight, and the whole *clayed* over to an inch above and half an inch below, smoothing it off taper, with a trowel, or knife, dipped in water. And as this is done with a view to keep out wet, sun and air, if the clay falls off, or cracks, it must be immediately repaired, till the season comes to take off the bandage, which is about *Midsummer*, or rather sooner: yet at this time some clay should be still kept on the *top*, to secure the cleft from wet, and so continued till the cleft is grown up.

If it is desired to put in *two* cions, to form a tree for the wall, or *espalier*, there should be two clefts parallel to one another, one on each side the *pith*. Some

put

put in two cions, merely in case one should miss; but it is not adviseable. It need hardly be observed, that in this case the crown must be left whole.

With respect to the *time* of performing this work, remember that what has been said relates to *pears*, *plums* and *cherries*: *apples* cannot be grafted till the beginning of *March*, or later, as the season is, even into *April*, for the sap must run.

WHIP-GRAFFING has the advantage of cleft-grafting in neatness, and not requiring the stocks to be so old by a year or two, as very small ones will do in this way; for the stock is directly covered by the cion, and it takes with certainty if properly performed. Cions suitable to proper stocks cannot however always be had. Stock and cion are to be both of a *size*, or rather nearly so, is better, the stock having the advantage in bigness; for thus it is not so likely to be overgrown, as it happens when the cion is of a more free nature. When the stock is overgrown by the cion, it will give it some opportunity to thicken, by slitting the bark through downwards, in two or three places. This circumstance is not, however, material in dwarf trees.

Having cut the *head* of the stock off, and the cion to its proper length, *slope* the lower end of the *cion* about an inch and a half, and to a point; then cut the stock to answer it, (the cut of the stock however may be a *trifle* wider and longer) bark against bark, and tie them together *exactly* to their place, and clay it. But for the greater certainty of keeping a cion to the part, cut it so as to leave a small *shoulder* at the top of the slope, and the stock so as to leave a narrow bit of its crown to answer it, and to hold it.

There is a sort of whip-grafting that has been denominated *slicing*, or *packing*, which differs only from the one just described, in that the stock is of *any* size; and this is performed by cutting the cion to a face, as before, and then taking off a slice from the (beheaded) stock,

stock, choosing a *gibbous* part of it so as exactly to correspond with the cut-surface of the cion, taking care to fit them so that the cion may stand erect (or nearly) when clapped to. Shouldering is commonly practised also in this way.

GRAFFING IN THE BARK, which is sometimes called *crown grafting*, is perhaps as good a way as any, both for ease of operation and certainty of success; but it will hardly suit any other fruit than *apples* or *pears*, as other cions will be past use (most likely) before the bark of the stocks will *peel*, as the time for this business is towards the end of *March*, or beginning of *April*.

The *head* being cut off, make a strait slit down and through the bark from the top, at the place destined for the graft, which should be rather *southerly* or *westerly*. This score down the bark, should be nearly as long as the slope cut of the cion, which may be one and a half, or two inches. Loosen the bark a little at the top of the score, and then with some *smooth* instrument rather of dry hard wood, ivory, bone, or silver, than iron or steel, open the bark sufficiently to receive the cion, by pushing the instrument down a trifle below the bottom of the slit. This instrument should be thin, tapered and rounded towards the point, to suit the shape of the cion's face; one side of it flat, and the other a little convex; the flat side being applied to the wood of the stock; let it be rather narrower than the cion, that it may not loosen the bark too wide.

Cut a bit of the *bark* of the cion smooth off at the bottom, that it may not turn up in pushing down. It will be proper to cut the cion with a small *shoulder*, to rest upon the stock. And because when the cion is in, it will bear the bark up hollow from the stock, score the bark on each side the cion, so that it may fall close to the stock, and to the edges of the cion. Bind and clay neatly. In this way of grafting there is a

sort

sort of agreement between the cion and stock necessary; the cion not being too big, or the stock too small, to prevent a proper *bedding*. If more than one cion be not put in, the stock on the opposite side to the cion should be sloped up, about two inches in length, to half its thickness.

This way of grafting is used most properly with *strong* stocks; and sometimes is applied to large branches, and even trunks of old trees, to change the sorts, or renew the wood. In proportion to the largeness of which, from two to five or six cions are put in, and sometimes of different sorts; and if the stock be large, the more the better, as it heals over the sooner, and as they insure the life of the stock, by receiving and carrying off the sap; in which respect a single branch of the head of an old stock may be left on, for the sap to pass off by when it begins to stir.

Having inserted the cions, and bound them, clay the top of the stock *well*, so as to shogt off the wet. In this way of grafting, the cions are liable to be *disturbed*, or moved from their places by strong winds, and the best preventative is to tie small long sticks to the stocks, and then the cions to them, taking care to place the sticks so as not to *force* the cions; and as the shoots proceed to push they may be fastened to the sticks also, and so grow two years, when nature will need no farther assistance.

SIDE-GRAFTING is done in the *bark*, much like *inoculation*, a cion being inserted instead of a *bud*; but remember, there must be a fluent sap first: i. e. the bark must part *readily* from the wood, before this mode of grafting is attempted. The *head* of the stock is *not* to be cut off; only thinned a little if it be big, and the side shoots taken away. The bark of the stock, where the insertion of the cion is to be, must be cut through in the form of the letter T, as wide and as long as is sufficient to receive the cion, cut as before, with a slope face or at *least* an inch long, taking
 5 advantage,

advantage, (if it may be) of a part of the stock, that is a little *gibbous*. Let the bark of the stock be neatly raised to receive it, but yet no more than necessary; a little bit of the bark may be sliced off the part that is over the cross cut, to receive the cion the better.

APPROACH GRAFFING, OR INARCHING, is performed (in *April* or *May*) when the stock we would graff, and the tree we would propagate, grows so near together, as to be brought conveniently into contact, and the nearer the graff and the stock are of a size the better. This mode of propagation is esteemed the *surest* of all, as it will conjoin branches of trees which are scarcely congenerous in their nature; and in truth, some things cannot be so well propagated any other way. It is a method that is, or can be, seldom used for common fruit trees; but if any one wishes to try the experiment, the *stock* or stocks must be planted at least a year before, first making the soil good, as it may need it, being so near another tree, for it of course must be close.

Plants in *pots* or *tubs* being easily brought together, are frequently propagated this way; so that *inarching* is used much in *green-houses* and *hot-houses* for various things, as *oranges*, *lemons*, *pomegranates*, *jasmynes* and *vines* sometimes: *oranges* and *lemons* thus treated in *May* will be united by *August*.

The *method* of *inarching* is, bend the best situated young branch of the tree or shrub to be propagated, to the stock to be grafted, and having determined on the part at which most conveniently to fix the shoot; cut the bark of that part of the shoot off, with nearly half the wood, (not to touch the *pith*) to the length of about three inches for a strong branch, or less for a weaker. Then cut exactly so much of the bark and wood of the stock off, as will receive the cut part of the branch, or shoot, so as to bring *bark* and *bark* in contact in every part; and if the contrivance of *lipping* be used, it will

secure

secure them better together. Bind and clay, and if in open ground, fix a stake to tie the work so that the wind may have no power over it; a tie also to a neat stick may be proper for those inarched in pots, &c.

As soon as the graff has *taken*, which will be probably in four months, (except in the harder woods,) let the head of the stock be steadily cut off with a *keen* knife, three or four inches above the binding, which when removing, bind and clay again, to remain about a month. In *March* following, cut off the branch from the parent close to the grafting, and also the stub of the stock that was left. The head of the stock is sometimes cut off before grafting, in which case a sloping cut half way the thickness of the stock, is to receive the cion; but, here the graff and the stock must be both of a size, or nearly so. There has been this *distinction* made, to call it *inarching* when the head is cut off, and *approach* grafting when it is not. Gardeners mostly prefer the former method.

BUDDING OR INOCULATION, though here last mentioned, is the most considerable mode of propagation, and is a pretty summer business. *Apricots*, *peaches*, and *nectarines* are always propagated this way, and *plums* and *cherries* may be. *Pears* are sometimes budded, and *apples* have been, but the success is uncertain. Not only *fruit*, but *forest*, and *ornamental trees* and *shrubs* are inoculated. The *branches* also of trees as well as stems are sometimes budded, which is best done on two years wood, though it may be on both younger and older.

Inoculation begins as soon as good shoots of the present year can be had, so that the season may be reckoned from *Mid-June* to *Mid-August*; but about *Old Midsummer*, or rather after, is the usual and best time for the work: it should be done in a *morning* or *evening*, (the latter rather best), except the day be cloudy, when any part of it will do.

Apricots

Apricots being first ready, the budding season begins with them. The *stocks* to be used are those of the *plum* (raised from stones or suckers) when half an inch thick a little under or over, and the operation is to take place from four to eight inches from the ground.

Peaches and *nectarines* are propagated on the same sort of stocks; but if the plum stock is first budded with an *apricot* (very low), and when of proper size budded with a peach, and especially a *nectarine*, the advantage is reckoned that it takes best so, and comes to a better bearing, producing an improved fruit, and particularly the *red Roman nectarine*. *Apricots* may be expected to be less luxuriant by *double-budding*, in which case the first bud should be of the *Brussels* sort.

Plums and *cherries* may be inoculated on sucker stocks of any kind; yet if a free growth is required (as for standards,) stocks raised from stones are best; i. e. plums on plums, and cherries on cherries, though they will take upon each other.

Pears, if for *standards*, should be inoculated on pear stocks, and on those raised from seed, rather than suckers, but if for dwarfs, quince stocks may be best used, to keep the trees from growing off too fast, and so getting soon too big for their allotted space; *white thorn* stocks are sometimes used with the same view, but the fruit gets stony.

Stocks for budding *dwarfs* should be three years old; but for *standards* four or more, though small stocks may be budded for standards also, (as mentioned before) if the shoot proceeding from the *bud* be trained to a single stem, till of sufficient height to be topped in order to form a head. *Standards* should be from three to seven feet high, before they are topped, according to the height they are desired to be of, as *half* or *full* sized; but *dwarfs* for training can hardly branch off too low, being budded at five or six inches, or less from the ground, the shoot from the bud should be shortened (at a year's growth) to five or six eyes, or

four that are well placed; i. e. with a *lateral* direction for the wall.

Though the longer *inoculation* is deferred, the riper the shoots will be for furnishing buds; yet there is this advantage in beginning as early as may be, that if the budding appears not to have taken, the work may be done again before the season is out. Or, to *insure* success, two buds may be inserted in the same stock, (but not in a direction under one another) and if both fail this year, the stocks may do again the next, as the heads in grafting by inoculation are not to be cut off till the spring following, because the inserted buds do not push till then, when they will grow off *apace*: In very early inoculation, the bud may shoot the same year; but it then comes weak, and will hardly endure severe winter.

Let the *cions* to procure buds for inoculation, be taken only from the outside branches of *healthy* and *fruitful* trees. If *early* budding be attempted, it will be proper to cut off some spare shoot, (not fit for the purpose), to try first whether the bark will yet *readily* part from the wood.

The *season* being right, and the cions at hand, having a sharp narrow bladed *knife*, and neat tough wet *claws*, set about the work *adroitly*, for the quicker it is done the better; but "make no more haste than good speed." Keep the *bud*, as much as may be, from *sun* and *wind*: they must not be taken from the upper part of the cions, as the bark and buds there are too raw. If cions, or buds, be brought from any distance, they should be conveyed in damp (not wet) moss, or straw, and never kept above a day and night, but the sooner they are used the better.

Before the *buds* are *prepared*, get the stock ready to receive them, by taking off lateral shoots, leaving an uncut single stem. At the part fixed on for the inoculation, (which should be smooth, and rather on the north

north side) cut the bark through to the wood, in form thus T, the cross and the down slit being of the length necessary to take in the bud, which may be cut with from one to two inches of bark; putting the point of a knife (or some instrument rather not of iron or steel) in to the top of the down cut of the stock, *raise* the bark all the way to the bottom, so that it will *just* receive the bud easily. There are knives made on purpose for budding with flat ivory hafts.

To procure proper *buds*, put your knife in (suppose) about three fourths of an inch above the eye, and with a slope downwards cut the cion half through, then do it at the same distance below the eye, and sloping it upwards cut up the middle of the wood, till the knife meets the upper incision, so the *eye* will be directly in the middle.

The next step is, to *separate* the wood from the bark, which is to be done thus: with your nail, or the point of a knife, loosen the bark at the top, and strip it from the wood; or rather with a swan or large goose quill, made in the form of an *apple scoop*, (having a regular *smooth* edge) push it down between the bark and wood, pressing against the wood.

Examine the inside of the bark, and if there is a *cavity* just behind the *eye*, or *bud*, it is good for nothing, and another must be procured; for the cavity shews, that the *root* of the bud is with the wood, instead of being with the bark.

The *leaf* that grows by the eye is to be cut down to near its footstalk, so as to leave only a little bit of it to hold the bud by while inserting it in the stock.

See that the *bark* of the stock is loosened a proper length and breadth, and if, when the bud is put in, it should prove a little too long, cut the spare part off; so that the top of the *bud* (being squared) falls in *strait* with the cross cut of the stock. Thus fixed, bind it *moderately* tight in its place with the *wet* bafs, beginning at the bottom, and passing by the *bud*, go on to the

the top, or rather above it. Care must be taken that the bud is not hurt, and it is to be left only just starting between the bafs: This is the mode of *inoculation* commonly used.

Some gardeners insist, that it is best to cut the bark of the stock thus *J*, and so insert the bud by pushing upward instead of downward, because by this method shoots off wet effectually.

Others *squaring* the bud to an oblong, clap it to the place to be inoculated, and scoring the stock to its size, cut out the bark of the stock from within the lines, and having put the bud to the place, bind it in: but great *exactness* must in this way be observed, that the edges of the bark do regularly touch.

Another way, and perhaps as good as any, is this:—Clap the bud to the stock, (the bud being first squared) and rather before it is separated from the wood, and score the bark on each side, and across the top; and instead of scoring the bark at the bottom, do it a quarter of an inch (or rather more) above the bottom ends of the side lines; then take off the bark between the lines, and place the bud, by pushing it down this piece of bark, (being first loosened) which will serve to hold it. Bind close, but not over tight. If in this method the bud fits *exactly*, it is a very sure and neat way of inoculating. As the scoring of the stock is best done before the barking of the bud, a little allowance must be made, as when the bud is separated from the wood, it will spread a trifle wider.

If the *buds* have *taken*, it will be seen in about three weeks, or a month, by their appearing *fresh* and *plump*. As often as any shoots appear *below* the budding, cut them off, and also some of the shoots above, if there are many of them; for it is not proper that an inoculated stock should have a large head. In a month loosen the bandage, by taking it off, and putting it on gently again, for another month.

In

In *March*, cut the head of the stock off with a keen knife, close behind the budding, in a sloping direction; some leave three or four inches of the stock above the bud till the following spring, and it will serve to tie the new shoot to, in order to keep it to a proper erect direction. Suffer no shoots from the stock, but rub the buds off as soon as they appear.

* * * * *

A few observations concludes this long article of propagation by *grafting* and *budding*. Persons designing to graft, are apt to neglect cutting their *cions* till they get too forward, therefore remember to be in time. To do the work well, there must be good tools, and particularly a keen knife. Choose as good a day as can reasonably be expected, for bad weather occasions hurry and embarrassment; but defer not too long on account of the weather. In handling *cions*, take care of their eyes, that nothing bruises them, and particularly of the buds used for inoculation.

Some motion of the *sap* is proper at the time of grafting, but a free motion is necessary for the mode of grafting in the *bark*, and as on the sunny side of the stock it moves freest, and is the best aspect as to weather, in the insertion of *grafts*, though not *buds*, if it can be avoided, should be always on a part of the stock inclining to the *West*. Remember to take off, or at least to loosen, the bandages on *grafts*, as soon as they have taken. It may be of use to *shade* the inoculated buds a few days, by a leaf, or a bit of paper. Silver (as a fruit knife) is best to raise the bark with, or any thing is preferable to iron.

Though *inoculation* may seem the slowest mode of propagating fruit-trees, it proves eventually the quickest; and is the most certain way to produce free growing trees, with a well covered stock. The insertion of

a bud

bud has also the advantage of a *cion*, as a failure does not hurt the stock so much. Avoid this work in very hot, dry weather.

It is to be *advised*, that some *mark* be affixed, (or notch the stock) to be assured of the sort; an uncertainty of which is often a great mortification.

Many *words* have been necessarily employed in directing to the business of *grafting*, but let not *that* circumstance deter ingenuity from setting about the work; for a few failures prevent perseverance, which will at length be crowned with success, and the achievement be a pleasing reward.

Though private persons are apt to think much of the *difficulty* of this art, yet the ease, celerity, and certainty, with which *Nurserymen* perform it, is great indeed: which is the ability that much practice gives.

SECTION VIII.

OF PLANTING.

AS so much depends upon proper planting, every attention ought to be paid to it. This business may be arranged under these several heads. 1. The choice of plants. 2. The act of planting. 3. The soil. 4. The situation. 5. The season.

I. As

1. As to the CHOICE of plants. Trees ought to be the *best* of the kind; and therefore no care in *raising* or caution and expence in *purchasing*, should be spared that at least there may be a fair *prospect* of satisfaction. To plant, and after waiting a long time, to be disappointed, is rather a *serious* misfortune; especially when the work is to be begun again late in a man's life.

Having some confidence that the *sort* is right and good, the *plants* must be seen to, that they are *healthy*; they should appear *sound* as to any external injury. If they are of a squat, weak, bushy growth, there can be little expectation of their becoming good plants, though it may sometimes happen that a tree of poor promise will rally.

Trees grafted on old *stunted* stocks, or that have often been *removed*, or frequently *cut down*, seldom grow off well in any soil, and should be rejected. Let those that are purchased be seen to, as *nurserymen* often have *such* trees, having remained long on hand.

Good *young trees* have a smooth, bright, and strait appearance, rather of a robust growth than otherwise; though the most luxuriant are not to be preferred, for their wood is raw, and wants that firmness which is necessary to fruitfulness; they may get off this crude state in time, but the moderately free-growers are best.

Young fruit-trees are the best to plant; for though old ones may sometimes succeed with good management, yet they are liable to stunt, and dwindle off; whereas the former establish their roots quickly, and grow off apace; so that young trees planted at the same time with old ones, generally overtake them in a few years, and are superior.

To have *moderate* shooting trees for the wall, or *espalier*, chuse such whose twigs are rather slender, provided they are healthy: they will not only be kept easier within compass, but in general be more fruitful.

2. The ACT of planting. Trees taken up for planting should be dug *carefully*, with (as much as possible) their *full* roots. Many a good tree has failed merely by being taken up badly, and then planted so. The roots of fruit-trees are often not only mangled, and too few, but are also put into the ground without any dressing or care.

The less roots are exposed to the *air* the better, and the sooner trees are planted after being taken up, the more likely they are to succeed well. Trees properly packed (i. e. the roots well covered) may live out of ground ten days or a fortnight, in *autumn*, or early in the *spring*; but nothing except *necessity* will justify the keeping a tree out of ground a day longer than can be helped.

If it be *determined* for any length of time before hand, when and where to plant, the *opening* the ground, and exposing the holes to the *sun* and *air*, (and if it may be to *frost* also) will both correct crudities in the soil, and enrich it from the various stores of the atmosphere; this opening should be as wide and deep as convenient, that the benefits of the air may be extended.

Some people do the *work* of planting very *idly*, as if it were sufficient to see that a tree has a root, and that it was only necessary to *hide* it in the ground. Every one who plants trees should stand by himself, or have some trusty person to *see* the work done, or the necessary labour may not be bestowed. It is frequently the way (for instance) to dig a hole *no* bigger than will receive the roots of a tree twisted and forced in; but being thus cramped, and the vessels of their roots distorted and broke, it cannot be expected that such *unnatural* treatment should answer.

But the above *violence* is not all; the roots are confined as in a prison, (in a tub or a basin) which, if the soil is strong, detains wet, and chills and cankers, if not rots the fibres. To plant well, the *roots* of a tree should have liberty to strike out freely every way, and

the ground well broke for their *easy* progress. Let the hole for a tree be loosened about two feet deep, and as wide as will be much more than sufficient to receive the roots in their *full* spread as they grow, with little or no direction given contrary to the original one.

When the tree is to be *planted*, take out the earth a little lower than necessary for the roots, at the depth the tree is designed to stand; then dig the bottom to the full spade's depth. Trim any *dead* or *damaged* part of the root clean off; thin it of the finer fibres where withered, or matted thick, and the more, according to the time the tree has been out of the ground, for the fine roots soon die, and *if* dead, ought not to be on. Trees moved only from one part of the garden to another, need have but few fibres cut off, but *some* amputations are necessary to help the sooner to new roots which shortening always forces out. If the root has a *tap*, (or downright spur) it should be cut to the general level of the other roots, and never be left longer than a foot from the highest part of the root. Those great roots that lay aukward, or crossing, should be judiciously rectified with a sharp knife; be cautious, however, of taking off *too* much, for the head will produce stronger branches in proportion to the goodness of the root. Though it be little practiced, it may be very well to apply some *mixture*, as of rosin and beeswax, to large amputations: Cow dung may do.

The *head* of a tree should be somewhat conformable to the root. *Some* reduction of the head may take place at the time of planting; yet not *all* that may be thought necessary should be taken off at first; but leave alone till the sap stirs at spring, and then care should be taken to proportion the head to the root; and not leave on a tree too many buds, for a few stout branches are preferable to many weak ones. This is the ordinary practice with respect to *wall trees*, and with not of *all* others. See articles, *Orchard* and *Pruning* Sect. 3 and 12.

Th

The *hole* being made as directed, form a little *hillock* in the middle of it to lay the roots *on* and *round*; clap the tree upon it, and having thrown on a little good and *well-broke* mould, give the tree a *gentle* shaking lift, which will let the earth in close among the roots, and bring the tree up towards its proper height; by not doing this, the roots are sometimes turned up at the ends, instead of laying *rather* downwards: Set the tree high enough to allow for a settling of the earth, in proportion to the depth it was loosened. *Young* trees, however, should have their roots nearly upon a *level*, and so must have their ends raised with the hand, if they are suspected to be too much depressed. The mould should be thrown on gently, a little at a time; and if some that is finer and richer than the rest be put about the roots, just to cover them, it would well answer the trouble, helping the tree to strike fresh roots, and grow off the faster.

Trample the mould *gently* about the roots, beginning at the outside of the hole, and so towards the stem. Finally, leave the ground a little hollow on the top, to receive rains, or waterings.

As to *depth*, trees in a *light* dry soil may have the top of their roots settled at about five or six inches below the surface, and in a *strong* soil about three inches; or it may be a general rule to plant a tree no deeper than it was before: for trees planted too deep never do well. Always keep the roots of a tree *above* a heavy clay, for the making trenches in it will not answer, and an unhealthy tree may be looked for. See next article *Soil*. If the good soil is *thin*, the roots should be almost planted in sight, raising the earth about them. Take care to *protect* the roots of all, but especially of high set trees, from frost the first winter, and drought the first summer. This covering of new planted trees about their roots from extremes of weather, may be either with good solid *turf*, *litter* with *stones* on it, or *stones* alone, which by their weight help to hold the tree fast.

Litter should be laid near a yard round, and five or six inches thick, to keep off severe weather. Where plenty of *moſs* is to be had, it is a neat material to lay about roots to keep them from drought. If litter alone is laid about trees, (particularly againſt an old wall) *mice* are apt to harbour in it, and bark them: where ſuch covering is uſed for winter, move it early in the ſpring, and ſupply the place with turf, which will be proper to continue all ſummer.

Watering is to take place if trees are planted *early* in autumn, which ſettles the mould about the roots, but let them not be ſodden with it. *Late* in ſpring water will be ſafely and neceſſarily applied, and muſt be repeated alſo if dry weather; but yet with caution, for many new planted trees have been injured (if not killed) by keeping the roots wet. Late planted trees ſhould be *occasionally* watered throughout the ſummer: thoſe planted in winter need none.

In planting *wall trees*, (the budded part outwards) try in the hole which way they will beſt ſtand againſt the wall; and if they have a head deſigned to remain for training, place it carefully for the branches to be laid to; but keep the tree as *far* from the wall as *may* be, (ſuppoſe eight or nine inches) that the roots may have the more room to ſtrike behind: cut off, or ſhorten much, all roots whoſe *direction* is ſtraight towards the wall. Nail the tree to it, that wind may not diſturb the roots.

In planting *ſtandards*, it will be proper to fix a *ſtake* near the ſtem to faſten the tree, in order to prevent the roots being diſturbed by wind, which prevents their ſtriking out new fibres; rocking about opens the ground alſo about the ſtem, and admits froſt, by which a tree is ſometimes loſt, or ſucceeds badly. This ſtaking is beſt done while the holes are *open*, and the roots of the tree ſeen, as by driving a ſtake in afterwards, it might damage ſome principal root, and the hurting a root is to be avoided as much as bruizing a branch.

Take

Take care to fix the stake firmly, and to tie the tree so with a hayband, that it may not easily get galled. Twist the band close round the tree first, and then round the stake and tree.

In late spring planting it will be found of good use to make a mixture (in a barrow) of *fresh cow dung* and *fine mould*, half and half, to put about the roots; which will greatly help to keep them cool, and plentifully to nourish them. In default of cow-dung, a *puddle* of fine sifted mould and water will do. Or, if the soil is light, mix half mud from a pond or ditch.

Circumstances may occur to make *summer* planting desirable, if it could be safely done. It is certain that roots quickly strike in summer, and if the head of the tree is a little reduced, and some shading contrived for a while, even *wall trees* may be then planted with cow dung. But the *greatest* point in this business is, that the tree be not out of the ground so long as to dry the roots; by some means they should be kept cool, and if dried, put into pond water a few hours before planting. Trees thus planted will not need watering for a long time, and must not have it, for over moisture might rot the delicate new fibres.

3. The *SOIL* for planting fruit trees should be good, or nothing pleasing can be expected: It should be sweet and nourishing; and therefore if not naturally so, it is to be improved by art and labour. Tillage or breaking up a soil, to expose it to the atmosphere, is of much benefit. See article *Soil*, in the *Formation of a Garden*. Sect. 3.

If nothing more can be done at the *present*, at least make the ground fairly good where the tree is to be set. Two or three barrows of *fresh* earth, if of a good quality, is far preferable to dung; but if the soil really needs manure, let it be well incorporated by the spade; and work some rotten dung in *deep*, below the roots, which will be properly consumed before the new roots reach it: much must not be used.

In the case of only making the soil good for the *present*, the first opportunity, (or at least before the roots spread far) should be taken to extend the benefit as far as may be, even to several yards round, and let this work be done deep enough, or as low as the part made good for first planting, i. e. two feet, or as near upon it as the case will allow. In a few years this attention should be extended (in bad soils) to where it may be thought *possible* for the roots to have reached. For want of this, a tree sometimes fails when just come to its full size and principal time for bearing. When roots reach a weak, ill-conditioned, poisonous soil, the tree *must* fail; and it should be remembered, that the *extreme* branches of the root are what chiefly nourish a plant.

Fruit trees (though they like a rather strong soil) will not prosper, or hardly grow, in a *cold* clay; but in a soil that is tolerable above, they may be planted, by improving, or raising this, as the case may require, and cautiously avoiding going into the clay. Some persons have laid flat stones, or tiles, below the root to a considerable distance, which perhaps may answer; but it seems advisable only to do it about a *foot* square, (or a little more) as this may give the roots a desirable horizontal direction. It has been recommended to do this in *all* kinds of soil, in order to insure a more superficial spread, than without such contrivance could be expected. If the *soil* be good, (at the same time strong) above any bad soil, and the roots take to run towards the surface, it is surprising how trees will thus prosper.

When planting takes place *superficially*, let a hillock of earth be laid round the roots, and the tree secured by a stake for two or three years to hold it steady; and keep *turf* or *moss* about the root till the tree is well established. The hill may be from six inches to half a yard high; in the latter case, lowering it a few inches every year in autumn till within six of the root.

In a soil that trees are found to *canker* in, and get otherwise diseased, it is of no use (generally speaking) to wait their getting better; but if there is any spot of a more promising quality, those that are not too old and far gone may be removed there, and perhaps recover; but let the *root* be examined, as well as the head, to cut out any *diseased* part. If the shoots should be *weak* the first year, prune down close the second, and strong wood may possibly follow.

With respect to the *soil* that suits every *particular* kind of tree, there is some variety of opinions. Generally speaking, a true *loam* suits every thing. See *Formation of a Garden*, Sect. 3.

The following particulars seem to have a pretty common consent. *Vines* love a rich dry soil, gravelly or sandy, if it does not bind. *Figs* like much the same soil, though they need not so rich a one: ashes are good in the soil for figs. *Apricots* flourish in a light loam; but *peaches* and *nectarines* should have a somewhat strong loam, and the latter needs the warmer or richer soil of the two. *Pears* like a strong but dry soil; *apples* a strong and a cool one, if it is not wet. *Cherries*, *plums*, *walnuts*, and *mulberries*, prefer a dry, sandy, gravelly, or light soil, though they will grow in a stronger; *plums* do very well in a moist soil, and produce the larger fruit in it, but the flavour is inferior. *Quinces* flourish most in a rich and moist soil, as by a brook or river's side, or where a rich wash from sinks, or dung-hills, runs occasionally about their roots: in a dry soil their fruit is small, though higher flavoured: It is an universal rule, that fruits are forwarder and more grateful in dry soils, but of less size.

Though the *vine* be planted in a right soil, yet it will require to be fed and enlivened with some *spirituous* manure, either in *autumn* or *spring*. For this purpose water impregnated with *sheep's dung* and fresh *urine* has been used. The top soil being removed, *bullocks*, or which is best, *hog's blood*, is sometimes applied;

plied; or it may be let in by making holes with a smooth sharp-pointed stake, not too near the stem. A little *sheep's dung*, or that of *poultry*, dug in regularly every *autumn*, is a good, neat, standing rule.

4. The SITUATION properest for planting any particular kind of tree is to be considered; for some like a low, some a high, some a moist, some a dry situation; but it is spoken here chiefly of *fruit trees*. Particularly observe that *pears* grafted on *quince* stocks, must have a moist soil, or they will not do well.

The *general* situation of a country will in a measure rule; for though *England* be but an island, it has many *climates* in it, and certain plants will do better in one place than another, (even within the space of a few miles) as to effects from weather. The difference between hill and valley in the *same* place, is something, so that in the latter the tender blossoms of trees shall escape, when in the former, unkind winds shall cut them off:—not that valleys are always safe, for they have sometimes destructive blasts from mists.

Peas sown to stand the winter, in a garden on a hill, and in another only a hundred yards below, in a vale, the former exposed, and the latter well sheltered, will demonstrate what *situation* will do; for the peas below will live when the others are cut off, and perhaps come in a week earlier, when both survive uninjured.

In very *exposed* places, especially *northwards*, little *fruit* can be expected from the more delicate *wall trees*; it is prudent therefore to avoid planting in cold places the *tenderest*, or the *earliest*, or the *latest* sorts. The difference of *latitude* between *Middlesex* and *Northamptonshire* makes commonly a fortnight in the coming in of many things; so that, generally speaking, what is called an *October* peach, is of little worth in the latter county, though in the former it may do well: Without plenty of walling for *experiment*, therefore, do not plant late fruit far northwards of *London*.

The

The farther *north*, however, is not a certain rule for the productions of the garden being *proportionally* later; for in some parts of *Yorkshire* they produce vegetables and fruits, nearly as early as about *London*. This has been ascribed to subterraneous heat from coal beds, or minerals, acting as natural hot-beds; but it may be attributed simply to a rich, warm, and deep soil, having gravel below it, especially when in a valley sheltered by winds on the cold side.

With regard to *situation*, we should consider the garden *itself*, and not plant choice fruits in a cold or shaded part of it: the *aspect* must be good for them as well as the soil. From an error of this sort, *Vines* have frequently been planted and pruned for years, producing nothing but wood and leaves.

Figs and *vines*, *nectarines* and *peaches*, (as natives of hot climates) should have a *full sun* here, or little fruit can be expected from them; and *Apricots* ought to have a good share of it, though they do very well (in some places) against an *east* wall, and perhaps against a *west*. An *east* aspect is not so safe as a *south* one, as to the embryo fruit at the time of blossoming, nor does it bring the *apricots* so forward; but the fruit is commonly better: it has the earliest sun all the morning, and the benefit of a gentle warmth afterwards, by the wall, (the sun shining hot on the other side) if the tree is nailed properly close. See *Formation of a Garden*, articles *Situation* and *Aspect*.

From what has been said on *situation*, the young gardener will be led to make some discrimination in planting, and not hope to succeed when working against nature. If his garden is small, let him contract his desires, and proceed upon sure grounds: but if large, experiments and risks are not of much consequence. Favourable and unfavourable seasons make a great difference; but hope should have a foundation, and we cannot expect a fortunate end, without the use of probable means.

5. The SEASON for planting is a matter of consequence, though some persons are apt to neglect it what they should, and do, know better. The proper rule is, to plant as *early* in the season as can be; so that if the ground is ready, trees had best be put in when the leaves *begin* to fall, i. e. in *October*; yet some good planters have recommended even an earlier time than this; and scruple not to plant all the latter half of *September*, though the leaves be full on. Some trees will form fresh roots in the winter; and those which do not, yet get so united with the earth, and prepared for starting in the spring, that they are ready to answer a supply of juices much more freely than when late planted; and consequently the new shoots *must* be stronger. Let nothing but necessity put off planting in *autumn*, except indeed the soil be a cold one, and then the work done early in spring is proper.

The season for planting in a dry soil *may* be all winter for *deciduous* trees, i. e. those that close their leaves; but all *evergreens*, (except the *Scotch fir*, which may be planted at any time) should be moved *early* in autumn, or *late* in spring, and rather the latter, as they are somewhat uncertain in taking kindly to the ground, especially if the weather is unfavourable at the time of planting. The *oak* and *larch* (though deciduous) are removed safest in the spring. In spring-planting always give a sound watering at the time, and if late in the spring, repeat it once a week in dry weather.

Let even the meanest trees and shrubs, as *currants*, *gooseberries*, and *raspberries*, have the like attention paid to them as to their superiors; for their fruit will prove the finer, and the argument is cogent for an *October* planting of these, as they are to bear the next season. Let them be taken up, and planted with care; for the *best* way of doing every thing ought to be the rule of practice in all cases, and a *gardener* should follow it above all persons.

SECTION IX.

OF SHRUBS, SHRUBBERIES, &c.

WE are indebted to SHRUBS for much of the pleasure we enjoy in our gardens and plantations, and they justly merit every care, though they produce us no (or few) *edible* fruits. They assist in forming an agreeable shade, they afford a great variety of flowers with leaves differently tinged, and are standard ornaments that give us no great trouble.

Of *shrubs* too little care (however) in general is taken to plant them properly, or even to choose good plants for the purpose; and hence they often fail to flourish, and are mortifying us with a dwindling growth, and unhealthy appearance, when they should have become objects of admiration.

Many *shrubs* are raised from *suckers*, others from *layers*, some from *cuttings*, and most may be propagated from *seeds*, which, though the slowest method, generally produces the finest plants. Before they are planted out for ornaments, they should be trained two or three years in a nursery, to be formed into a full and regular shaped head.

Though *deciduous* shrubs may be planted almost at any time, yet *October* is much the best month, especially if a moist season; the exception being made as to a cold wet soil, in which all sorts of planting (as observed before) is best done in spring.

Evergreen shrubs must be cautiously planted, and should not be ventured upon in winter, and even in

autumn and spring ought not to be meddled with in harsh weather: drying winds are apt presently to injure their roots. It is a good rule, let the weather be what it will, and the sorts what they may, to expose the roots to the air no longer than can be helped; *evergreens* should therefore be immediately planted after they are taken up, and their roots also very carefully preserved whole. And if the shrubs are small, and it can be, let them be removed with balls of earth to them, trimming off projecting ends.

As *shrubberies*, *clumps*, &c. are often made on poor or indifferent ground, the soil should be previously cleared, well dug, and *trenched*, and that as long before planting as may be. For *spring* planting, this work ought to be done in *autumn* or in *winter*, that the soil may have the benefit of frosts, and other helps from the atmosphere, which is a circumstance of much consequence in the case.

Tillage not only saves manure, but is superior to it, where time can be allowed exhausted ground. In planting *shrubs* and *trees*, it is desirable to do without *dung*, as much as possible; and therefore a little *soot*, or *turf-ashes*, &c. sprinkled over the ridges of trenched ground, is good; and if the trenches were turned over once a month, the advantage would be fully answerable to the trouble.

As *spring* is, on the whole, rather the fittest time for moving *evergreen* shrubs, and as the *deciduous* sorts do then also very well, *shrubberies* and *clumps* will properly enough be the work of *March*, a little earlier or later, according to the soil and season. Light sandy soils should always be planted in good time, and any fair weather that appears settled, should not be neglected: the beginning of *April*, however, is by some reckoned the best season for planting shrubs. A good medium way is to plant the *deciduous* sorts the beginning of *March*; and, leaving places for the *evergreen* kinds, plant them the end of *March*, or the beginning of

of *April*. But it were still a better way (if the ground is in order) to plant *deciduous* shrubs in autumn, and the *evergreen* sorts in spring.

If *autumn* be the season fixed for planting, it will be proper, before the frost comes in, to cover the roots of shrubs, and especially of *evergreens*, with litter, and indeed at *spring* it should be so; for neither *frost* nor *drought* should be suffered to affect new planted trees, or shrubs. Let the outside plants of a new shrubbery, towards the sun, be covered about the roots all summer: Turf will be neatest.

What has been said of the *art* (or method) of planting *fruit trees*, should be observed of *shrubs*. In dressing the roots of shrubs, shorten them moderately, prune the heads so as to form them handsomely. Settle the ground to the roots by watering, and leave a little hollow round about them for future watering, if the season should require it. Let the taller plants be tied to stakes, as the wind is apt to disturb them, and hinder their speedy rooting.

The proper *disposition* of shrubs, where there are many to be planted, should be considered in several particulars; for the beauty and prosperity of a plantation depends greatly upon it.

The *distances* must be according to the *size* they usually attain. Some grow off slow at first, but afterwards get large; but still these should be rather considered in a middling way, otherwise the ground will be a long time naked. Some sorts will require not more than a three feet distance, others four, five, or six; but as they are small, when planted, and perhaps much of a size, the *future* height and spread are frequently not considered.

The *situation*, to accommodate them as well as may be, according to their *tender* or *hardy* nature, should be attended to; not to plant *evergreen* shrubs, or the more delicate *deciduous* sorts, on the outside towards the *N.* or *N. E.* and as there may be an irregularity in the

the ground, the lower parts and deeper soil will be more suitable to some, and the higher and shallower may do very well for others.

Tender shrubs should not only be sheltered for protection, but be planted in a *dry* spot open to the sun: Some things will live abroad in a dry and poor soil, that would seldom survive a winter in a rich and moist one. The more towering sorts must be placed behind, and the less so before them, *gradually* declining to the low growing ones, in a sort of *theatrical* order: This is necessary in a *shrubbery*, and indeed all plantations, but more so in the disposition of plants in *clumps*, keeping the center high, and falling gradually towards the edge. Thus the stems, and naked parts of the higher plants are hid by those before them, and the whole appears to the eye a full scene of verdure.

The *season* of shrubs flowering and leafing is a material point to provide for, by a proper distribution, that there may be a sprinkling of decoration every month, in every part. And in this business, an equally dispersed mixture of the evergreen, and deciduous sorts, is necessary to be observed. See Sect. 19.

As to the *proportion* of this mixture, it will depend upon taste, and the opportunity of procuring the one sort, or the other; but the circumstance may direct (in a measure) whether the plantation of shrubs be about the *house*, or at a distance from it. In the former case, more *evergreens* should be made use of, as in sight in winter: generally speaking, perhaps, one evergreen, and two deciduous shrubs, or one and three, may form an agreeable shrubbery for view at all times.

A *regularity* in planting shrubs is not necessary as to *lines*, but is rather to be avoided, except just in the front, where there should always be some low ones, and a border for *flowers*, chiefly of the *spring*, as summer ones are apt to be drawn up weak, if the shrubbery walks are not very wide. The flowers should be of the lowest growth, and rather bulbous rooted. To-
wards

towards the edge may be planted *aconites*, *snow-drops*,
rocusses, *primroses*, *violets*, *polyanthus*, *hepaticas*, *wood*
anemonies, (in particular) *daffodils*, *cowslips*, &c. In
 open shrubberies an edging of *strawberries* is proper,
 and the *hautboy* preferable, on account of its superior
 show when in flower; but in these situations the *wood*
strawberry is more commonly planted, as it will pro-
 duce fruit with less sun and air.

The management of a plantation of shrubs comes
 next to be considered. It should be kept *clean*, or
 much of its beauty is lost. Let it be frequently *hoed*
 and raked, to give it a fresh appearance, and prevent
 the growth of *moss*, which spreads apace from the ground
 up the stems of plants, and thus injures them much.
 The usual time for *pruning* and *digging* about shrubs is
spring; but *autumn* (and early in it) is better, if the
 plants are well established in the ground, and especially
 when old and full of roots. The *pruning* should not
 be late, (*October* best) as *some* sorts are apt to die down;
 these, however, might be left to spring, or only short-
 ened in part: They should constantly be kept free from
suckers and *luxuriant* wood. See *pruning of shrubs*.
 An autumn dressing is particularly to be recommended
 as lessening the work of spring, the hurry of which sea-
 son sometimes occasions shrubberies to be neglected too
 long, and to be but partially attended to.

The *suckers*, or young plants, found in digging and
 dressing about shrubs, are often left carelessly on the
 ground, but if likely to be wanted, ought to have their
 roots buried as soon as possible: Why should they be
 suffered to wither, because they may recover?

For *hedges* about a plantation, (i. e. for the *divisions*
 of it) the *laurel*, *yew*, and *holly*, are the principal *ever-*
greens; the former as a lofty and open fence, the second
 as close and moderate in height, and to be cut to any
 thing, the last as trainable by judicious pruning to an
 impregnable and beautiful fence. *Deciduous* divisions
 are best made with the small leaved *elm*, or the *hop*
hornbeam,

hornbeam, as they are *tonfile*, and of a peculiar neat foliage to the very bottom. If a lofty hedge is wanted, the *beech* makes a good one.

Old walls and *pales* are somewhat unsightly, and if covered with plants are rendered agreeable. The evergreens to be recommended for hiding them, are the *laurel*, *phyllyrea*, *alaternus*, *pyracantha*, *yew*, *box*, and *laurostinus*; but if the aspect of the wall be *N.* let them be planted late in spring. *Ivy*, *box-thorn*, and other climbing shrubs, answer the purpose: the white and yellow striped *Ivy* are beautiful. If a mere summer covering be desired, and the wall is high, *hornbeam*, (rather the *hop*) and *witch elm*, do very well when planted close: *filacs*, or even *black currants*, also may do, and will soon come to a cover: But whatever is planted for the purpose, let it be kept regularly trimmed, and trained close as may be to the wall. The gable end of a building may be covered with a *pear-tree*, or a *vine*, for though the vine should not bear, it will answer its prime end, and looks well when in full leaf.

SECTION X.

OF FOREST TREES.

PLANTING of *forest trees*, in some extent or other, may be an object with some young gardeners; and those who have a taste this way, and ground to exercise it on, will amuse themselves in a very

very *respectable* manner by so doing. Let the work be set about with all speed and resolution; for every year lost to planting is to be lamented, both in a public and private view.

What if *forest trees* produce nothing for the table, or no *immediate* profit, they afford, in their raising, planting, and nursing, present entertainment of a very grateful kind: they may ever after be viewed as objects of satisfaction, and *posterity* will have reason to praise the work.

Plantations of forest trees do very much ornament a country, and there are some grounds peculiarly situated to become objects of *delight* in this respect, which could not be better employed. A place without trees being destitute of one of the most useful materials for buildings, utensils, &c. is in truth to be lamented as unfurnished and forlorn. The demand for *wood* is perpetual, and the consumption is great; and therefore a provision for generations to come, by planting of *forest trees*, must afford the sincerest (because most disinterested) gratifications of pleasure to the mind.

Though every one has not ground to form *plantations* of any considerable extent, yet if it were only a single tree here and there, i. e. to do what little *might* be in this way, it would shew a worthy spirit, and make a man an honourable benefactor to society. *Corners* of fields might have little clumps conveniently planted, without much expence of fencing. A few trees might be planted in, or rather just without, *hedge rows*; but these should be chiefly *oaks*. It is a practice with some, to plant trees in hedges when first made; but they are commonly too small, and so the quick choaks them, and they never thrive.

The planting of *forest trees* is *profitable* as well as pleasing and respectable; and a young planter may live to *reap* much reward from his labour, or he may leave a valuable inheritance to his children. "The
plantation

plantation and care of timber is like buying the reversion of an estate—for a little money expended, we become heirs to great sums.—In countries scarce of firing, and where poles and rails are wanted, *underwood* will pay the proprietor triple more value than the best fields of corn, and the *oaks* among it remain a great estate to succeeding generations." *Poor land*, that does not answer for *corn*, would be profitably cultivated in *wood*; but such ground should be *sown*, rather than planted. Wet places may be advantageously planted with the amphibious tribe, as *willow*, *fallow*, *withy*, *osier*, &c.

For those who may be disposed to plant *forest trees*, the following directions are offered:—The *manual work* proper to this business, may be gathered from what has been already said on planting *fruit trees* and *shrubs*; and though plantations of *forest trees* need not be so nicely attended to as fruit trees, yet the *better* the work is performed, the fairer is the prospect in growing *good timber*: a *check* by an error at first planting is a loss of time, and a damage done to trees which is sometimes never recovered. To give an instance:—the mould is often thrown on the roots of a forest tree in *lumps*, when if a little *sifted* earth were used, so as just to cover them with fine mould, the trouble would be amply repaid by the quick striking, and future strength of the tree.

Ground *designed* for planting should be *prepared* as long as it can beforehand, by the use of the plough or spade; and if some sort of previous cultivation, either in *corn* or *vegetables*, were adopted, the soil would be better fitted to receive the trees. At any rate, the places where the trees are to be set, should be previously dug somewhat deep, and cleared of rubbish, perennial weeds, twitch, &c. If wet, let it be properly drained, for none but *aquatics* can do well in a cold and very moist soil.

In *open* planting for timber, to make only the holes good where the trees are set, is sufficient, if the soil is not strong, (which generally speaking however it should be,) and in such plantations the plough being used for *corn*, or some sort of crop to be carried off, the whole soil will be prepared for the trees' roots to spread. A plantation of this sort may be constantly under the plough, till the trees shade too much, and then it may be sown down for *grass*, which laying warm, and coming early, would be found useful. The opportunity given to *improve* a soil by this cultivation, would insure very fine timber.

But a *plantation* of trees being made (as suppose of *oaks*) at due distances, and the ground ploughed for two or three years, while they got a little a-head, then it might be *sown* profitably, with nuts, keys and seeds for *underwood*, observing to thin the plants the second year, and again the third, till two or three feet asunder in poor ground, and to three or four feet distance if rich. In fourteen or fifteen years, (or much sooner for some purposes), the *ash poles*, &c. will be *fine*, and meet with a ready sale as useful stuff: Afterwards the *underwood* will be fit to cut, in a strong state, every eleven or twelve years. In the management of *underwood*, some have thinned the plants while young, to three feet asunder, and cut them down at three years, to about six inches, in order to form *stools*, which in about ten years are cut, having produced several stems from each. Some persons have cut seedling trees down at this age to three inches for *timber*, leaving only one strong shoot to grow from each stool; and thus finer trees are frequently (or rather certainly) produced, than from seedlings not cut down.

The *distances* of the timber plants, may be from twenty-five to thirty-five feet, according to the soil, or opinion of the planter. If no view to *underwood*, the above *open* planting may be made close, by setting first the *principals* (which should be fine plants) and then filling

filling up with others that are worse, to within about eight or nine feet of one another. They will at this distance come to fair *timber*, or may be thinned at pleasure; and even among these, a small crop of *underwood* might be had, which would shelter the timber plants, and help to draw them up strait.

As to little plantations, of *thickets*, *coppices*, *clumps*, and *rows* of trees, they are to be set close according to their *nature*, and the particular view the planter has, who will take care to consider the usual size they attain, and their *mode* of growth. An advantage at home for shade or shelter, and a more distant object of sight, will make a difference. For some immediate advantage, *very* close planting may take place, but good trees cannot be thus expected; yet if thinned in *time*, a strait tall stem is thus procured, which afterwards is of great advantage.

For little *clumps*, or *groupes* of forest trees, (as elms) there may be planted three or four in a spot, within five or six feet of one another, and thus be easily fenced: having the air freely all round, and a good soil, such clumps produce fine timber.

Single trees of every sort, grow off apace, and are more beautiful than when in the neighbourhood of others, and particularly *firs*, *pin*es, *lar*ches, *limes*, *walnuts*, and *ch*esn^{ut}s: the *edible* fruited *ch*esn^{ut} is only good for timber; but the *hor*se is very ornamental, flourishing however only on high dry ground. As to *rows* of trees, whether single or double, when planted for a *screen*, they may be set about seven or eight feet asunder, upon an average, according to their nature, taking care to prune them occasionally, from too galling an interference.

Avenues are now seldom planted, but when they are, two good rows of *elms*, *limes*, *ch*esn^{ut}s, &c. should be set at the width of the house, at full thirty feet distance in the rows; to thicken which, intermediate plants may be set; and also an inner row, to be removed when

When the principal trees are full grown. *Avenues* to prospects, should be fifty or sixty feet wide.

The best season for planting the *deciduous* kinds of forest trees, is the latter end of *October*, and *evergreen* sorts, the latter end of *March*; though the soil, whether light and dry, or heavy and wet, should somewhat direct; evergreen trees being to be planted generally with safety, early in autumn, if the soil is warm; but in all cases trees should be planted in *dry* weather, so that the mould may be loose to drop in, and lie close between the roots, which is a *material* thing: Trees planted in rain or mists, are injured by moulding the roots.

Forest trees for planting are generally preferred rather large, and being so, should not be taken up *idly*, but with as much of an uninjured spread of roots as possible: yet, free growing plants of about three or four feet high, promise in the *end* to make finer trees than those that are planted larger. Some say they are best at this size from the *seed bed*; and others, to have been once planted out, having had their tap roots then cut, and generally speaking, this is the case, as they have a more bushy and horizontal root.

In the *act* of planting, let every thing be done as directed for fruit trees; i. e. the hole dug wide and deep, the ground well broken, or rather sifted, to lay immediately about the roots, &c. Let the trees be made fast by stakes, and litter laid about their roots to keep out frost and drought. It is of much consequence to take care that the roots (especially of *evergreen* trees) do not get withered before planted. *Evergreens* do best in a dry, but *deciduous* forest trees (generally) in a moist soil, if it is not wet. *Oaks* in particular, though at first they may appear to do poorly, grow well in strong moist ground, and make the best timber.

Fencing is the last thing to be considered. If trees are planted where cattle go, their stems must be protected from barking and rubbing. The common way of

of small posts and little rails is well known; but large cattle are not fed where the trees are, go thorns stuck round them, and tied to them, is sufficient, and indeed this might do in almost all cases. There are *various* ways, ordinarily known, but whatever mode is used, let it be at first well executed, and afterwards repaired in time, as often as there is need. Something concerning the *raising* of forest trees will be found at page 78.

Whoever plants *forest trees*, should take care to dress them by proper pruning, and suffering no suckers to remain about their roots. Their *tops* should be kept equal, and not permitted to spread too much in heavy branches, but trained in a light and spiral way; always preserving the leading shoot, to encourage *mounting*, which is the perfection of a forest tree. The *stems* of all trees designed for timber, should be constantly, and *timely* attended to, as it is necessary to rub off buds, and to cut off the side shoots, except here and there a small one, which may serve to detain the sap to the swelling of the trunk; but branches being left on of an equal strength, keep the tree from mounting, and draw it crooked, and such branches, if cut off when large, occasion knots, and sometimes a decay at the part.

Plantations, growing thick, should be *thinned* in time; but not too much at once, especially in hilly situations; for as those trees which remain, come suddenly to be exposed, (after having been brought up under the shelter of others,) suffer much; getting crooked, stunted, and bushy, instead of having the desirable erect form, without which they are not adapted for superior uses, or agreeable to the eye.

Ornamental trees, as the *crab*, *black cherry*, *mountain ash*, &c. may prove profitable, as well as agreeable here and there one amongst forest trees, and should therefore not be omitted: The wood is good.

SECTION XI.

OF RURAL AND EXTENSIVE GARDENING.

RURAL and extensive gardening is naturally connected with a taste for planting *forest trees*; and an idea of the *picturesque* should ever accompany the work of planting. Merely for the sake of *objects* to gratify the eye, planting is very often pursued, and wherever trees can be introduced to improve a view from the *house*, or accustomed walks, *there* a man, having it in his power, as proprietor of the land, ought certainly to plant.

If to planting in *clumps*, *coppices*, *groves*, *avenues*, and *woods*, be added levelling of ground, improving of water courses, and pastures, making lawns, &c. the expence incurred would be *honourable*, and answered by pleasures of the sincerest kind! There are ways of spending money, that *could* be named, which are found mischievous in the extreme, and are therefore deservedly branded with disgrace; but he who distributes wealth into the hands of *industry*, working to useful purposes, and that delectable end of making the country about him a *garden*, does it in wisdom.

Yet here some *caution* may be necessary. "Do nothing too much," is a wise maxim. Building, planting, and gardening, upon a *large* scale, have been sometimes attended with *serious* consequences, as when a man's fortune has not been equal to the undertaking.

It

It were desirable to be able to persuade to great things in this way; but prudence must guide.

Those who would do much in *rural and extensive gardening*, should not be forward to trust their own taste altogether, though they may be ingenious. In this business there is no making *experiments*, but all should be executed, as much as possible, upon certainty. There are *professional* men in this way, whose peculiar practice, and appropriate talents, will enable them to conceive improvements, and the best manner of executing them, which would scarcely be projected by any private person. There is a variety of works and decorations in extensive gardening which injudiciously introduced, might create a wasteful expence. This is an error that *ought* to be avoided, and more probably would be, by those who have been in the habit of studying nature, and the powers of art, rather than her submissive handmaid.

Artificial decorations are at this time much less made use of than formerly, and the grandeur of past times in the way of gardening would *now* be thought trifling and mean. Witness sheared trees, statues, vases, water works, figured parterres, &c. in that style of gardening, imitated from the *Dutch*, which has been long deemed a mere burlesque upon Nature, the grand characteristics of which are *ease* and *simplicity*.

The pleasure we seek in *laying out* gardens, is now justly founded upon the principles of *concealed art*, which appears like Nature; but still, whether ingenious contrivances and decorations, (altogether artificial,) should be so entirely laid aside as they are, may deserve to be considered. Gardens were formerly loaded with *statues*, and great improprieties were committed in placing them, as *Neptune*, in a grove, and *Vulcan* at a fountain, large figures in small gardens, and small in large, &c. but, perhaps, works of the statuary might still be introduced, and the meeting with *Flora*, *Ceres*, or *Pomona*, &c. well executed, and

and in proper places, could hardly give offence. A terrace as a boundary, is now seldom formed, but in some situations, such an eminence however might in several respects be agreeable.

It would certainly be too much to attempt here particular directions for extensive gardening. The peculiar capabilities of any place must suggest what may be done, and much judgment is necessary to plan right. It is presumed only to give a few hints to those private persons who would do something in this way, which they may consider as they please.

If trees are planted injudiciously, the error is a trifle; but if cut down so, the consequence is serious, and has often been sorely lamented; extirpation should therefore be well thought of before it is executed; especially trees about houses, for many dwellings have been thus too hastily exposed, and deprived of a comfortable shelter and shade. And why should a taste have prevailed for so sudden a transition, as no sooner out of the house than to arrive in the open country, or why should an extensive garden be thrown as much as possible into a single view, when meeting with new objects in our walks is so agreeable?

Hilly spots that are in view of the house should be planted with *firs*, as pleasant noble looking trees, and very hardy. *Beech* does well on high ground, especially, if chalky. In low ground, not to mention *alders* and that tribe, the *birch*, and even the *oak*, should not be forgot, where the wet does not long stand.

About the house some shady walks ought always to be provided, by thick planting, if not of trees, yet of flowering shrubs, and *evergreens*, of which the *laurel* will be found the most useful. Here should be also a good portion of grass plat, or *lawn*, which so delights the eye when neatly kept, also borders of showy flowers, which if backed by any kind of fence, it should be hid with evergreens, or at least with deciduous shrubs, that the scene may be as much as possible vi-

vacuous. If there is good room, *single* trees of the *fr* kind, at due distances, are admirable ornaments about a house, and clumps of shrubs all of the *same* kind have a good effect.

Those who have *much* space of ground to decorate, do well to plant trees and shrubs of *every* kind, as enlarging the sources of amusement, and affording opportunities for observation; but if the allotment of ground for this purpose is *contracted*, then, of course, those *only* should be planted, which by their neat foliage, natural symmetry, and gay flowers, may be truly esteemed *ornamental*. They should be such as strike the eye of persons in *general*, though they have nothing of singularity to engage the attention of the curious in plants. It too often happens, that good *el* sorts of trees, shrubs, and flowers, are excluded for *new* ones, but if the latter are *not* more elegant, and generally pleasing, the practice is surely not a wise one: in ornamental gardening, on a *small* scale, great care should be taken, in the choice of what is really pretty, that nothing dull or rambling be introduced.

In the most *sheltered* place, near the house, there should be an *inclosure* of a compact nature, as *sup* pose of *yew*, *dwarf elm*, or *hornbeam* (rather the former) open only to the *South*, as a necessary apartment to place things in from the *greenhouse*, or occasionally the *hothouse*, tender *annuals*, or any hardy *curious* potted plants, for a summer residence. *Spruce* *firs* answer very well, being kept clipped a little after Midsummer. For this purpose, or for *hedges* to separate, or divide, any spot of ground, the *hop hornbeam* is better than the *common* sort, which holds its dead leaves on all the *winter*, and makes a litter at *spring*. This business may also be easily effected by planting *elder* cuttings at a foot asunder, which will grow up quickly, being kept moist.

The *walks* should always be *wide*, some (in general) serpentine, and contrived as much as possible upon a level.

a level, as walking up and down hills can hardly be called pleasure. That they may be extensive, they should skirt the grounds, and seldom go across them. In small pleasure grounds the *edges* of the walks should be regularly planted with flowers, and long ones occasionally so, or with the most dwarf shrubs; and neat sheltered compartments of *flowers*, (every now and then to be met with) have a pretty effect. If the walks are extended to distant plantations of *forest trees*, every opportunity should be taken, to introduce something of the herbaceous *flowery* kind, which will prove the more pleasing, as found in unexpected situations: The outer walk of pleasure grounds and plantations, should every now and then break into open views of the country, and to parts of the internal space, made pleasing, if not striking, by some work of art, or decoration of nature.

Water should only be introduced where it will run itself *clear*, or may be easily kept so, ought to be kept in full sight, and some *fall* of it should be contrived, (if possible,) for the sake of giving it motion and sound, because a lively scene of this element is always much more pleasant than a dead one. Every *spring* of water should be made the most of, and though *fountains*, &c. are out of fashion, something of this kind is agreeable enough. Near some piece of *water*, as a cool retreat, it is desirable that there should be something of the *summer-house* kind, and why not the simple rustic *arbour*, embowered with the *woodbine*, the *sweetbriar*, the *jasmine*, and the *rose*. Pole arbours are tied well together with bark or osier twigs.

“Before the design of a rural and extensive *garden* be put in execution, it ought to be considered, or anticipated, what it will be in twenty or thirty years time; for it often happens, that a design which looks handsome when it is first planted, and in good proportion, becomes so small and ridiculous in process of time, that there is a necessity either to alter it, or

destroy it entirely, and so plant it anew." This observation of Mr. *Miller's*, justifies the advice given of employing the most *skilful* in planning and directing pleasure grounds. To proportion the breadth of walks, the size of carpets, casting and levelling of grounds, parterres, &c. The disposal of fountains, statues, vases, dials, and other decorations of magnificence to most advantage, requires a *particular address*, says Mr. *Evelyn*, or to speak more emphatically, a *prophetic eye*; and though the taste is not now what it was in Mr. *Evelyn's* time, yet, perhaps, the only difference is that *more skill* is requisite.

What has been said of the *difficulty* of rural and extensive gardening, is meant only as advice to proceed with cautious steps. The work is truly of the most worthy nature, and a taste for it deserves to be cherished. Mr. *Shenstone*, in an ode on *rural elegance*, defends his favourite employment thus :

And oh! the transport, most ally'd to song,
 In some fair villa's peaceful bound,
 To catch soft hints from Nature's tongue,
 And bid Arcadia bloom around :
 Whether we fringe the sloping hill,
 Or smoothe below the verdant mead ;
 Whether we break the falling rill,
 Or through meandering mazes lead :
 Or in the horrid bramble's room,
 Bid careless groupes of roses bloom :
 Or let some shelter'd lake serene
 Reflect flow'rs, woods, and spiers, and brighten all the
 the scene ;
 O sweet disposal of the rural hour !
 O beauties never known to cloy !
 While worth and genius haunt the favour'd bow'r
 And every gentle breast partakes the joy !
 While *Charity* at eve surveys the swain,
 Enabled by these toils to cheer
 A train of helpless infants dear,

Speed

Speed whistling home across the plain:
 Sees vagrant *Luxury*, her hand-maid grown,
 For half her graceless deeds atone,
 And hails the bounteous work, and ranks it with her
 own.

Why brand these pleasures with the name
 Of soft, unsocial toils, of indolence and shame?
 Search but the garden, or the wood,
 Let yon admir'd carnation own,
 Not *all* was meant for raiment, or for food,
 Not all for needful use alone;
 There while the seeds of future blossoms dwell,
 'Tis colour'd for the sight, perfum'd to please the smell.

Why knows the nightingale to sing?
 Why flows the pine's nectarious juice?
 Why shines with paint the linnet's wing?
 For sustenance alone? for use?
 For preservation? Every sphere
 Shall bid fair *Pleasure's* rightful claim appear,
 And sure there seem of *human* kind,
 Some born to shun the solemn strife;
 Some for *amusive* talks design'd,
 To soothe the certain ills of life;
 Grace its lone vales with many a budding rose,
 New founts of bliss disclose,
 Call forth refreshing shades, and decorate repose.

Mr. *Shenstone* succeeded admirably in laying out his grounds, and producing a delightful scene about the *Leasowes*. Several *gentlemen* have done great things in picturesque gardening, without the assistance of professional artists; but they have had a peculiar talent this way, improved by study and observation. Thus Mr. *Walpole* makes an easy affair of it, and says, "the possessor, if he has *any* taste, is the best designer of his own grounds." And indeed, as they have come so frequently under his own eye and contemplation, he must, in a *great* measure, be competent to the work; and at least, ought not to give up his judgment *too* implicitly to general undertakers of rural gardening.

Ornamental gardening depends much on the form of the ground, and therefore to shape *that* is the first object. Some situations may not need it, and, perhaps, a little alteration may produce a happy effect in others; therefore great alterations should not be attempted without manifest advantages, as either levelling, or raising ground, is a heavier business than is commonly supposed, both as to time and expence.

Too much *plane* is to be guarded against, and when it abounds, the eye should be relieved, by *clumps*, or some other agreeable object. *Hollows* are not easily filled, and *eminences*, mostly are advantageous, in the formation of *picturesque scenes*, in which the *general* principle of ornamental gardening consists. This idea has been pressed so far, that it is contended, a gardener should be a studier of landscape paintings. But without an immediate view to pictures, no doubt, grounds may be laid out in a way sufficiently picturesque. That view may be very agreeable in Nature, which would not be so in a picture, and *vice versa*.

Picturesque gardening is effected by a number of means, which a true rural genius, and the study of examples only can produce. These examples may be *pictures*, but the better instructions will be scenes in Nature; and the proper grouping of trees, according to their mode of growth, shades of green, and appearance in autumn will effect a great deal.

To plant *picturesquely* a knowledge of the *characteristic* differences of trees and shrubs, is evidently a principal qualification. Some trees spread their branches wide; others grow spiral, and some conical; some have a close foliage, others an open one, and some form regular, others irregular heads, the branches and leaves of which may grow erect, level, or pendent.

The *mode* of growth in trees, as quick or slow, the time of leafing, and shedding leaf, with the colour of the bark, are all circumstances of consideration in order

to produce striking contrasts, and happy assemblages, in the way of ornamental gardening.

“ To *range* the shrubs and small trees, so that they mutually set off the beauties, and conceal the blemishes, of each other ; to aim at no effects which depend on a nicety for their success, and which the soil, the exposure, or the season of the day, may destroy ; to attend more to the groupes than to the individuals ; and to consider the whole as a plantation, not as a collection of plants ; are the best general rules which can be given concerning them.

“ In considering the subjects of gardening, ground and wood first present themselves ; *water* is the next ; which, though not absolutely necessary to a beautiful composition, yet occurs so often, and is so capital a feature, that it is always regretted when wanting ; and no large place can be supposed, a little spot can hardly be imagined, in which it may not be agreeable. It accommodates itself to every situation, is the most interesting object in a landscape, and the happiest circumstance in a retired recess ; captivates the eye at a distance, invites approach, and is delightful when near : it refreshes an open exposure ; it animates a shade, cheers the dreariness of a waste, and enriches the most crowded view. In form, in style, and in extent, it may be made equal to the greatest compositions, or adapted to the least : it may spread in a calm expanse to soothe the tranquillity of a spaceful scene ; or hurrying along a devious course, add splendour to a gay, and extravagance to a romantic situation. So various are the characters which water can assume, that there is scarcely an idea in which it may not concur, or an impression which it cannot enforce.”

On the works of *art* in gardening, the following passage is pertinent :—“ *Art* was carried to excess, when ground, wood, and water, were reduced to mathematical figure, and similarity and order were pre-

ferred to freedom and variety. These mischiefs, however, were occasioned, not by the use, but the perversion of art; it excluded, instead of improving upon nature, and thereby destroyed the very end it was called in to promote. Architecture requires symmetry, the objects of nature freedom; and the properties of the one cannot, with justice, be transferred to the other. But if, by the term *art*, no more is meant than merely *design*, the dispute is at an end; choice, arrangement, composition, improvement, and preservation, are so many symptoms of *art*, which may occasionally appear in several parts of a garden, but ought to be displayed without reserve near the *house*: nothing there should seem neglected: it is a scene of the most cultivated nature: it ought to be enriched, it ought to be adorned; and design may be avowed in the plan, and expence in the execution. Even regularity is not excluded: a capital structure may extend its influence beyond its walls; but this power should be exercised only over its immediate appendages. Works of *sculpture* are not, like buildings, objects familiar in scenes of cultivated nature; but vases, statues, and termini, are usual appendages to a considerable edifice: as such, they may attend the mansion, and trespass a little upon the garden, provided they are not carried so far into it as to lose their connection with the structure."

SECTION XII.

OF PRUNING.

I. OF WALL TREES.

OF this "master work of gardening," it has been said, "that gentlemen prune too little, and gardeners too much;" these extremes are to be avoided, as attended with peculiar evils, equally mischievous: *Wall-trees* are presently spoiled by either practice. If they are too full of wood, the shoots and fruits cannot be properly ripened, and if they are too thin, the consequence of the cutting that has made them so, is the production of wood, rather than fruit, *forcing* out shoots, where otherwise blossom buds would have been formed. The designation of trees to a *wall* necessarily occasions cutting, and on the *skilful* use of the knife much depends; but let not the ingenious young gardener be discouraged at the appearance of difficulty: a little study, practice, and perseverance, will clear the way, and if he does not become a *complete* pruner at once, he will in a reasonable time, and the work will prove one of the pleasantest amusements of a garden, not attended with fatigue.

Every one who has wall-trees cannot keep a *professed* gardener, nor is every one who *calls* himself so, qualified to prune properly. It is a great mortification to a man, who wishes to see his trees in order, not to

be able to get an operator to attend them ; let him resolve to learn the art *himself*, and the ability will be very gratifying to him.

Proud of his well-spread walls, he views his trees
That meet (no barren interval between,)
With pleasure more than ev'n their fruits afford,
Which, save himself who trains them, none can feel.

COWPER.

As many words must be used on this article of *pruning*, for the sake of a little *order*, and the appearing less tedious, the business of managing *wall-trees* may be thus divided:—1. Concerning the FORM. 2. The HEALTH. 3. The FRUITFULNESS of them. A tree may be kept in good *form*, but be neither *healthy* nor *fruitful*, and may be both in good form and health, yet not fruitful ; but if it is fruitful, it must possess both the former qualifications.

1. As to the FORM, or general appearances of the wall trees. If a tree is newly planted, the first thing is to *head* it down, by cutting off (if it is a *nectarine*, *peach*, or *apricot*) all the shoots, and the stem itself, down to a few eyes, that the lower part of the wall may be furnished with new and strong wood. Make the cut sloping, and behind the tree, taking care (by placing the foot on the root, and the left hand on the stem) not to disturb the tree by the pull of the knife. Plaister the part with a bit of cow-dung, clay, or stiff earth.

The *heading down* is to be made so as to leave two or three eyes, or four, if a high wall, on each *side* of the stem, from which shoots will come properly placed for training. The number of eyes may be also according to the strength of the tree, and its roots. If there are not two well placed eyes on each side of the stem, two *shoots*, thus situated, may be left, cutting them short to
two

two or three eyes each. Eyes, or shoots behind, or before, as being of no use, must be early displaced by rubbing, or cutting. This work is to be performed in spring, when the tree is putting forth shoots; i. e. about the beginning of *April*.

If towards the end of *May*, there should be wanting shoots on either side the tree, having, perhaps, only one put forth where two were expected, *that* one shoot should be cut, or pinched down, to two or three eyes; and before summer is over there will be found good shoots from them, and thus a proper head be obtained. This work of shortening shoots of the year may be done any time before *Midsummer*; but in this case, all ill-placed, or superfluous growths, must be rubbed off as soon as seen, that those to be reserved may be the stronger.

As the *lateral* shoots grow, let them be *timely* nailed to the wall, close, strait, and equi-distant; but use no force while they are tender. If they are quite *well* placed, they will need no bending; but sometimes shoots must be laid in which are not perfectly so. Lay in as many good *moderate* sized shoots as may be throughout the summer, for choice at winter pruning, yet do not crowd the tree. As the shoots proceed in length, nail them to the wall, that no material dangling of them be seen; but avoid using too many shreds.

In the *formation* of a tree, keep each side as nearly as can be *equal* in wood, and the shoots inclining downwards, which is a mode of training necessary to fill the lower part of the wall, (none of which should be lost) and to check the too free motion of the sap, which wall trees are liable to from their warm situation, and continual cutting. All the branches should have an *horizontal* tendency, though the upper cannot have it so much as the lower ones. Those that are *perpendicular*, or nearly-so, mount the wall too fast, and run away with the food that should pass to the horizontals, which being impoverished by the vigorous *middle* branches, gradually become

become too weak to extend themselves, and nourish the fruit. The pruner, therefore, must be content to have some of the wall, over the middle of the tree, unoccupied; or, at least, suffer none but *weak*, or very moderate shoots, to find a place there.

The *idea* of a well-formed tree is somewhat represented by the ribs of a spread *fan*, or the *fingers* of the hand extended. Regularity is allowed to be so necessary to the *beauty* of a wall tree, that some have even drawn lines for a guide to train by; but Nature, (ever free and easy) will not submit to so much formality, and such a perfect disposition of the branches are not necessary. A tree may be regular, without being linear, and the proper useful shoots are not to be sacrificed to a fanciful precision. Though *crossing* of branches is against rule, yet cases *may* happen (as in want of wood or fruit) where even this awkwardness may be permitted. The object is *fruit*, and to obtain this end, form must sometimes give place. "Barrenness being the greatest defect, crossing must not be scrupled, when barrenness cannot otherwise be avoided." A tree may be in fair symmetry, and yet badly pruned; and thus some ignorantly, and others cunningly, put trees in *order* without a proper *selection* of branches, so that the best shall be cut out, and the worst left, merely because the latter suits the form better, and gives a favourable appearance to the work as regular.

All *fore-right* and *back* shoots, and other useless wood, should be displaced in time, for they exhaust the strength of the tree to no purpose, and occasion a rude appearance. It is a very expeditious method to displace superfluous young shoots, by pushing, or *breaking* them off; but when they get *woody*, it is apt to tear the bark, and, in this case, the knife must be used: the better way is to *dis-bud* by rubbing; yet a young *luxuriant* tree should be suffered to grow a little wild to spend the sap. There is one evil, however, attending on *dis-budding*, and rubbing off young *fore rights*, that
some

some *fruit spurs* are thus lost ; for *apricots* are apt to bear on little short shoots, of from half an inch to an inch, (or more) and there are *peaches* which do the same ; so that it is a rule with some pruners to wait to distinguish *spurs* from *shoots*, and then to use the knife ; but the less the knife is used in summer the better.

In *regulating* a tree, at any time, begin at the bottom and middle, and work the way orderly upward and outward. Never *shorten* in *summer*, (which would produce fresh shoots) except a forward shoot where wood may be wanting ; but where the tree is really too thick, cut *clean* out what may be spared. None of the shoots produced *after* Midsummer should be nailed in, except where wood is wanting to fill a naked place : They never bear fruit.

The proper use of *nails* and *shreds* is necessary to the beauty of the tree, as well as a regular disposition of the branches ; and in this business ingenuity will evidence itself in neatness.

Nails that are weak and small can hardly be used, for they must be of sufficient strength to hold *fast* ; but large nails do not look well, and hurt the wall more than smaller. There is, however, a sort made on purpose for this work, with flat heads, and robust shanks, called *garden nails*, and these are generally to be used ; there is yet a smaller sort, with flat heads, that, in many cases, might do, and they have somewhat the advantage in *neatness*. In default of these there are *latb* nails, of two or three sizes, that may be brought into use. It is proper to have two sizes, the larger for strong, and the smaller for weak shoots : trees trained to *wood* can hardly have nails too small.

Shreds should be adapted to the strength of the branches, and the distance of the buds from each other ; so that with strong shoots, having their buds wide, such broad shreds may be used, that would make weak shoots unsightly, and spoil them by covering the buds ; many a well cut tree has been made disgusting, merely

merely by irregular and dangling shreds. An uniformity of *colour* can hardly be accomplished, but a regularity of *size* may; scarlet, if all alike, looks best; and white the worst. The general *width* of shreds should be from half an inch to three quarters, and the *length* two inches to three, having some wider, longer, and stronger, for large branches. In the *disposition* of shreds, some must have their ends turned downwards, and some upwards, as best suits, for bringing the shoots to their proper place, and strait direction. Though some pruners observe a sort of alternate order, yet the ends hanging chiefly down, (if it may be) will be found to look best. Use no more shreds and nails than necessary to make good work, as the effect is both rude and injurious.

The *hammer* used in nailing branches should be neat and light, with a perfectly smooth and level face, about two thirds of an inch diameter, having a claw for drawing nails. As nails are apt to break out pieces of the wall in drawing, it is a good way to give the nail a tap to drive it a little, which loosening it from its rust, makes it come out easier, and so saves a wall from large holes, which is a material thing, as they harbour insects and filth.

Trellises have been recommended to be placed against walls, as a means of keeping a wall sound, and giving the fruit more room to swell. In the training of fruit trees that do not require the greatest degree of sun, and in situations where the loss of a little heat is not material, this method of training trees is a good one. But, perhaps, there are not many situations in *England*, (common as it is on the continent) where this mode of culture can be adopted, as all the sun we meet with here, is generally but barely sufficient for *peaches*, *nectarines*, *grapes*, and *figs*. *Apricots*, however, may do, and when trained upon a *trellis*, in a *southern* aspect, grow finer, and are less mealy than directly against a wall.

Trellises

Trellises should be made of seasoned *deal*, and squared to slips of three-fourths of an inch, or a trifle wider; and fixed close to the wall, so as to form upright oblongs of twelve inches by six. In this way of training, the shreds ought to be finer, and the nails much smaller; but the branches may be *tied* with *bafs*, &c. if the *trellis* is set a little from the wall, as suppose an inch.

It may be observed, that *tying* saves the expence of nails and shreds, close set buds are never covered, and damage from the hammer is avoided. By trellising, a tree will be less infested with vermin and *insects*, which breed in the holes made by nailing. In this mode of training, the fruit swells freely, grows larger, and is of more equal flavour; so that it deserves trial where it is likely to succeed by fine situations.

Let the young gardener be advised *resolutely* to observe the pruning *laws*, and keep all in perpetual order, for his trees will run presently to confusion and ruin, if inattention and neglect take place.

2. The HEALTH of wall trees is greatly provided for, by observing the directions already given, concerning their *form*; for if observed, each shoot will have the proper benefit of *sun* and *air*, to concoct its juices, and prepare it for fruiting.

It injures a tender shoot when it presses hard against a *nail*. If the *hammer* strikes a shoot, and bruises the bark, it often spoils, if not kills it, by the part cankering. The *shreds* may be too tight, so that the shoot cannot properly swell; and if shreds are too broad, and too numerous, they are apt to occasion sickness, and prove a harbour for insects and filth: Let the number be lessened at all opportunities. A slip of the *knife* may wound a neighbouring branch, and make it gum, canker, or die. It will require care, and some practice, to avoid this accident; and in order to it, keep the point of the knife sharp, and mind the position of it when cutting.

cutting. Cut close and sloping behind the eye; neither so near as to injure it, nor so wide as to leave a stub.

Digging deep with a spade about borders sometimes injures the roots, and keeps them too low in the ground when they should be encouraged to run higher; and nothing but well consumed dung, or other manure that drops freely, should be used about fruit trees, it is a good way to dig, or stir the ground carefully with an *asparagus fork*. Wounds and bruises hurt roots, as much as branches, and though cutting small roots asunder by a spade, does good rather than harm, yet large ones are often much injured by this instrument.

The *extremities* of a tree will not be in vigour without a strict attention to the *middle*, that it have no strong wood, growing erectly: this was before directed, and *must* be observed. When the sides of a tree are well extended, and full of healthy wood, then some shoots of *moderate* substance may be trained up the middle.

The *bending* of a branch *much* is a violence to be avoided; so that every shoot should be kept from the *first* in the direction it is to grow.

Luxuriant wood must be particularly attended to, to get rid of it in time, before it has robbed the weaker branches too much. That is *luxuriant* wood, which, according to the *general habit* of the tree, is much larger than the rest; for a shoot that is deemed *luxuriant* in one tree, may not be so in another. If strong wood, that is not very *luxuriant*, happens to be at the bottom of the tree, so that it can be trained quite horizontally, it may often be used to good purpose, as this position checks the sap. A *luxuriant* shoot may be kept in summer where it is not designed to retain it, merely to cut it down at *winter* pruning to two or three eyes, for getting wood where wanted the next year; or this shortening may take place in *June*, to have new shoots the present year. *Luxuriant* shoots may be sometimes retained for a time, merely as *waste pipes*.

More

More concerning luxuriant wood will be found in what follows.

All *diseased*, damaged, very weak, or worn out branches (as they occur) should be cut out, to make way for better; but if a tree is *generally* diseased, some caution must be used not to cut out too much at once, if there is any hope of restoring it. A very old tree, or a young one, that does not thrive, may be cut a great deal; but prune it so as to have a general sprinkling of the best of the branches, and keep short lengths of an eye or two, of the weaker ones; in a sort of alternate order.

Young trees are very apt to decline, and sometimes die, if suffered to overbear themselves the first year or two of fruiting: The remedy is obvious, and should be absolutely be applied.

A *weak tree* is helped much by training it more *erectly* than usual, as less check is thus given to the sap, and so the shoots are more likely to swell: such a tree should be kept *thin* of branches, and always pruned *early* in autumn, keeping the top free from such wood as is stronger than that which is in general below, and all shorter than usual.

Old decaying trees should be lessened a little every year, and constantly watched, to observe where young and strong shoots are putting out below, in order to cut down *to* them; and though the time for doing this is commonly at autumn or winter pruning, yet it may be best done in summer, as the shoots would thrive the better, observing to put some grafting clay, or cow dung, to the part, to prevent gumming, which summer pruning is apt to occasion. A judicious pruner may bring the oldest, and most ill-conditioned tree, to a healthy and bearing state, if all is but right at the root, it having a good soil about it.

Keep all wall trees *clean*, and particularly weak ones, from moss, cobwebs, or other filth; and attend to insects, snails, caterpillars, and smother flies. Any *bark* that

that is decayed by cracks, &c. must be cleared away to the quick, either by rubbing, or the knife, as filth and insects are apt particularly to gather there: wipe the part clean.

Consider the *soil* about an unthrifty tree, and if it is thought bad, improve it by moving away as much of the old as conveniently can be done. The roots may be laid quite bare, and examined, in order to cut off decayed or cankered parts, and to apply immediately to them some fine and good *fresh* earth, with a little thorough rotten dung in it, and a sprinkling of foot, or wood ashes.

Hog dung, applied fresh, is said to have a peculiar efficacy in recovering weak trees; and *cow dung* may reasonably be expected to do good, if the soil is a warm or hungry one, and if not so, the hog dung is not proper, as it is a cold dressing. If the soil is a strong one, a *compost* of *fowls*, or *sheep's dung*, *lime*, with any fresh light *earth*, one part of each of the former, and three of the latter, mixed with the soil that is taken off, will be a proper manure; to which a little sharp sand may be added. An *animal* dressing, as of entrails, or any carrion, or bullock's blood, applied to the roots, has been frequently found effectual to make fruitful, and to recover decaying trees, and in particular vines. All these applications should be made late in *autumn*, or early in spring.

The *constitution* of a tree is sometimes naturally barren; or the soil that the roots have got into may be brought and *deleterious*, that no pains, or perseverance will avail any thing; but growing worse and worse admonishes the owner to take it up, and try another plant, rectifying the soil thoroughly, if the evil is thought to arise there. The *smother fly* does sometimes repeatedly attack the same tree, which is a sign of inherent weakness, for the juices of a sickly tree are sweeter than those of a sound one, and so more liable to such attacks. Sometimes a tree of this kind, when removed

to a good soil, and pruned greatly down, does very well. A soil too rich of dung often occasions trees to be blighted, and the remedy is to impoverish it with a sharp sand.

In order to *health* and *strength*, a tree must not be kept too *full* during summer, as it prevents the proper ripening of the wood, and makes the shoots long jointed. If more than one shoot proceed from the same eye, reserve only the strongest and best situated. A crowded tree cannot be healthy, and it becomes both lodging and food for insects. The *blossom buds* of a tree being formed the *year before*, will be few and weak in a thicket of leaves, as debarred of the necessary sun and air: But in order to avoid an over-fulness, do not make any great amputations in summer, lest the tree should gum.

In clearing a tree of *superabundant* wood, take care not to cut off the *leading* shoot of a branch. All shoots after *Midsummer* should be displaced as they arise, except where wanted to fill up a *vacancy*. In a *too* vigorous tree, the *Midsummer* shoots may be left for a while on those branches that are to be cut out at winter pruning, as cutting such trees in summer is to be avoided as much as possible; so that a little rudeness in a luxuriant tree may be permitted as a necessary evil, provided it becomes not too shady, or unsightly. *Watering* wall trees with an *engine* on a summer's evening, is conducive to their health, and frees them from insects.

The subject of *blights* is too copious, difficult, and uncertain, to be entered upon here farther than has been.

3. The FRUITFULNESS of wall trees, (the ultimate object of planting and training them) comes now to be spoken of. Their proper *form* and *health* being good, the foundation is laid, but several things are yet to be done to obtain the *end* proposed, and this chiefly regards

regards the principal cutting, or what is called *winter pruning*.

If trees have been planted far enough asunder, it is a happy circumstance, as the proper *horizontal form*, and the *open middle*, may be preserved. The longer the horizontals are, the more necessary it is to be careful to suffer none but weak branches in the center uprightly. If trees are confined as to length of wall, they of course take a more erect form: but still strong wood should not mount just in the middle.

If the trees have been properly attended to during *summer*, there will be now (at their principal, or *winter pruning*) the less to do; and the leading objects are, to *thin* and to *furnish* them, or, in other words, to take out what is to spare, and to cut what is left, so as to fill the tree properly again by succeeding shoots.

A tree is to be *thinned* of damaged, unpromising, and ill-placed shoots, and of woody branches that are decaying, or reach far without fruitful shoots on them, and always *some* of the old wood should be cut out, where there is young to follow, or supply its place. Of the fair and well placed shoots also, the superabundance is to be taken away, so as generally to leave the *good* ones at four, five, or six inches asunder, according to the size of the wood and fruit.

Luxuriant wood, i. e. those shoots that are gigantic must be taken out from the rest, as they would impoverish the good, and destroy the weak branches, and are never fruitful; but if a tree is *generally* luxuriant, it must be borne with, and the less it is cut, comparatively speaking, the better. Such a tree, after a few years, may come to bear well; and when it begins to shoot moderately, some of the biggest wood may be taken out each year, or shortened down to two or three eyes, and so brought into order. The more horizontally free shooting trees are trained the better, as the bending of the shoots checks the sap. A strong shoot or

two,

no, of a very luxuriant tree, may be trained perpendicular for a time, to keep the horizontals the more moderate.

As the pruner is to begin below, and towards the bottom, so the object in thinning must be, to prefer and to leave those shoots that are placed *lowest* on the branches, so that the tree may be furnished towards the center. See that those left are sound, and not weak, or over strong, for the moderate shoots generally bear best. Weak shoots are always more fruitful than strong ones; and if they are furnished with fair blossoms, should be kept where a tree is full of wood, and even preferred to moderate ones, on a very flourishing tree.

In this *thinning* business, the young pruner must be content to go on *deliberately*, that he may consider well before the knife is applied. To make a proper *choice* of the *great* point. After hesitating, to be sometimes at a loss, must not discourage a learner, for good pruners are often at a loss, and no two adepts would choose just the same shoots.

The next object is to *furnish* a tree. In order to this, the thinning of old wood, young being ready (or easily to be procured) to follow, has already been mentioned; but the principal step is the *shortening* of the shoots, which occasions them to throw out below the top, for *future* use. If they were not to be shortened, the tree would presently extend a great way, bearing chiefly at the extremities, and all over the middle it would be thin of fruit, and thus a great part of the wall lost; which not to suffer, is one of the arts of a pruner that shews his skill.

The *mode* of bearing in peaches, nectarines, and apricots, is on the last year's wood, which makes it necessary to *shorten*, in order to a certain supply of shoots for bearing the next year; and thus to have *succession* wood every part of the tree.

The rule for *shortening* is this: Consider the strength of the tree, and the more vigorous the shoots are, cut off

off the lefs. If a luxuriant tree were to have its shoot much shortened, it would throw out nothing but wood; and if a weak tree were not pretty much cut, it would not have strength to bear. From vigorous shoots one-fourth may be cut off; from middling ones, one-third; and from weak ones, one-half.

In shortening, make the cut at a leading shoot bud which is known by having a *blossom bud* on the side of it, or, which is better, one on each side. *Blossom buds* are rounder and fuller than leaf buds, and are discernible even at the fall of the leaf, and plainly seen early in the spring. It is desirable to make the cut at *terminal blossoms*, yet as this cannot always be done, the due proportion of *length* must generally determine. It often happens, that the blossom buds are chiefly, and sometimes all, at the end of the shoot; but still it should be shortened, if it is at all long. Never cut where there is *only* a blossom bud, and prefer those shoots that are shortest jointed, and have the blossoms most in the middle. The shoots that lie well, and are fruitful, and healthy, and but a few inches long, may be left *whole*. Always contrive to have a *good leader* at the end of every principal branch.

Young trees (as of the first year of branching) should have the lower shoots left longer in proportion, and the upper shorter, in order to form the tree better to the filling of the wall: the lower shoots may have three or four eyes more than the upper.

In *furnishing* a tree, consider where it *wants* wood, and cut the nearest unbearing branch (or if necessary a bearing one), down to one, two, or more eyes, according to the number of shoots desired, for in such close shortening, a shoot will come from each eye. With a view to wood for filling up a naked place, a shoot formed after *Midsummer* may be thus shortened; though the general rule is, to displace *all* such late shoots as are useless; the dependence for blossoms being on the early formed shoots.

The *time* for the principal, or *winter* pruning, is by some gardeners held indifferent, if the weather is mild the time; but a moderate winter's day is often quickly followed by a severe frost, which may hurt the eye and blossom next the cut. The best time is at the fall of the leaf, and may take place as soon as the leaves begin to fall. *November* is, generally speaking, a good time, and if this month is past, then *February*, if it is mild, or as soon after as possible, for when the blossoms buds get swelled, they are apt to be knocked off by a little touch, or jar.

An *autumn* pruning will make the tree stronger, and the blossoms come bolder and forwarder; and if trees are then cut, as it lessens the work of *spring* much, this alone is a good argument for it. This practice gives also a better opportunity to crop the borders (moderately) with *cauliflowers*, *lettuces*, *radishes*, &c. to stand the winter. Pruners in general, however, like *spring* cutting, because they then see the blossoms plainly, and thus more readily make their election of shoots. Yet if the first fine weather and leisure were embraced in *autumn*, it were certainly better; and surely it must give satisfaction to see the trees in order all the winter.

But though an *autumn* pruning is to be earnestly recommended, it were best to leave *young* trees, for a year or two, after heading down till *spring*; and *luxuriant* trees ought certainly to be so left, not only to check the strength of the coming shoots, but to see better where their blossoms are, that no fruit be lost, as when in this state they bear but idly.

In an *autumn* pruning, *apricots* should be cut last; but if *spring* be the time, the rule is to begin with *apricots*, then *peaches*, and then *nectarines*. *Apricots* should not be so much shortened as *peaches*, nor do they so well endure the knife. Shoots of the *apricot*, if under a foot, may be left uncut, if there is room. The *spurs* of *apricots* should be spared, if not too long, or
nume-

numerous, for they bear well, and continue for years. Some sorts of *peaches* are also apt to put out fruit *spurs* and must be managed accordingly.

If much *alteration* is to be made in a wall tree, it will be necessary to un-nail a great part, if not the whole tree, or a side of it, at least. When a tree has *filled its space*, something of this sort *must* be done, and the worst, oldest, largest, and most unprofitable wood taken out. If good fruitful wood be cut away to reduce the tree, then that is to be reserved which will lay in straightest and in the best form, branching out the nearest towards the stem.

Thus having finished the directions for pruning *apricots*, *peaches*, and *nectarines*, a few short observations may be made, and something said concerning the *management* of those wall trees, in order to obtain good fruit.

After trees have been pruned, it will be proper to look them over, to see what can be amended, as they will hardly be done *perfectly* at first; this business may be let alone till *blossoming* time, and then some judicious alterations may perhaps be made, (with care) as taking out some weak, or other shoots, that prove *barren*, and may be spared, or cutting some down to the knit-fruit, both to benefit that, and make room for the new wood. *April* will be the time for this.

The *pruner's* business is not simply in providing the present, or a next year's crop of fruit, but to manage his trees so as to lay a *foundation* for years to come. He is to *anticipate* consequences, and provide for the future.

Particular as the directions here given for pruning have been, they cannot have comprehended every *possible* case, but good sense and experience will readily supply what may be wanting, if the instructions afforded are understood.

Those who *hire* a workman to perform their pruning should have three *summer* operations besides the *winter*

e. in *May, July, and September*, earlier or later in these months as the season is, taking care to be satisfied of the *skill* of the performer.

* * * * *

To *preserve blossoms* from inclement weather, is a thing some persons are curious in, though on the whole, they may be (as they generally are) left to take their chance. After expence and trouble, this business is often done to no purpose, or a bad one. The covers sometimes knock off the tender blossoms, and if the work is done irregularly, as perhaps covered too close for a time, and then left uncovered, they are sooner cut off.

Many contrivances for *shelters* have been used. The old way of sticking cuttings of *yew*, or other *evergreens*, or *fern*, (which is best when dry) is as little trouble as any; but they should be fixed carefully, so as not to slip, or be moved by wind, and not so thick as to shade overmuch. A slight covering is of service, and rather to be recommended than a thick one.

Nothing more than an old *net* has been used successfully by some gardeners for the purpose.

A *coping* projecting from six inches to a foot, according to the height of the wall, is serviceable, as keeping off heavy rains, and also frosts, whose action is perpendicular: This coping, when it is of *thatch*, though not so slightly, is best: But *perpetual* covers, if wide, do harm by keeping off dew and gentle rains.

The *best* covering for the protection of *blossoms* is, perhaps, that which Mr. *Miller* recommends, "made with two leaves of slit-deal, joined over each other, and painted, fixed upon the top of the wall with pulleys, to draw up and down at pleasure, forming a sort of greenhouse."

Reed or *straw* hurdles have been used to place before the trees in severe weather; and if only set at right angles

H

angles against the wall, towards the *east*, when the wind is strong from that quarter, they do good: a long tree might have one set up against the middle of it, as well as at the *east* end. *Hurdles*, covered with a mat, or cloth over them, do very well; and if too short to reach the top of the wall, they may be set upon forked stakes fast in the ground.

Poles fixed in the ground to the height of the wall, at small distances, and six inches from it, might be covered with *mats*.

Whatever *covering* is used, it should be left *no* longer on than necessary, and it should be well secured from slipping or rubbing against the tree by wind. It should not be used till the blossoms get a little forward, nor continued longer than while the fruit is well set, being *regularly* put up at night, and taken off in the day, except in very bad weather: Trees covered too long get sickly.

The *thinning* of fruit, when too thick upon the tree, is a matter that must be attended to, for it will eventually prove loss, and not gain, to leave too many for ripening. It weakens the tree, prevents the knitting of so many, or so strong blossoms for the next year as are desirable, and hinders the fruit from coming to its size and flavour. Do this work when the fruit is about the size of a horse-bean.

The *rule* for thinning should be, to leave no two fruits so close as to swell one against another; except indeed the tree is generally short of fruit, when twins may be left on strong branches. Three or four, on a long and strong branch, are quite enow, and so in proportion for weaker wood: this is said of the larger sorts of *peaches* and *nectarines*; *apricots* may, in general, be left somewhat thicker on a flourishing tree, and the lesser kinds of *peaches* and *apricots* may still be somewhat more numerous, as the early *masculine apricot*, the *nutmeg peach*, and *nutmeg nectarine*: there may be more *nectarines* left on a tree than *peaches*.

As the *apricots* gathered to thin a tree are used for pies, so are sometimes the *nectarines*, but let not too many of either grow for this use, or stay too long on the tree before they are gathered. Thin the more freely flourishing young trees, (to the third year) and weak old ones. Trees should be thinned by cutting off the fruit with a sharp pointed knife, and not by pulling, which may tear the bark, and, if joined (as in clusters) to another fruit, the pulling off one, often damages the foot stalk of the other, and occasions its dropping.

As to thinning the *leaves* of wall trees, too much liberty should not be taken, though in some measure it may be necessary to give colour and ripeness to the fruit. Thinning away a few leaves, where thick, is serviceable to ripening the wood to form blossoms. When leaves are greatly multiplied, and shade the fruit much, a few at a time may be displaced, if the fruit is nearly full grown, but rather by pinching or cutting the leaves, just above the foot stalk, than by pulling.

In gathering wall fruit, do not pinch it to try if it is ripe, but give it a gentle lift, and if fit for eating, it will readily part from the foot stalk. Those *peaches* and *nectarines* that drop by their ripeness are yet good (some say best) for the table; but *apricots* have a sharper and more agreeable flavour before they are thoroughly ripe.

As to the dropping of fruit, when it has attained to some little size, in very light soils, it may be owing to drought, use watering therefore deep and wide. But the cause seems often to be some injury from insects, or frosts, that the *embryo* fruit has suffered at the foot stalk, which can only sustain its burden for a while, and when its own weight breaks it off. See p. 51.

* * * * *

Vines require frequent attention, as to pruning and training; but all will avail little, if they have not a

warm soil, and full sun, or some accidental advantage, as being planted at the back of a warm chimney; and though they will grow and bear leaves any where, they will not fruit well in *England*, without a favourable season, or hot summer.

Young new planted vines should be pruned quite short, for two or three years, that they may get strong. If the plant has a weak root, not above *one* shoot ought to grow the first year, which should be cut down in *autumn* to two or three eyes.

The best *time* for the principal, or winter pruning of vines, is best as soon as the fruit is off, or the leaves falling. *November* does very well, and if this month passes, *February* should be adopted, rather than quite in the winter. Late in the spring they are apt to bleed by cutting, which greatly weakens them.

The *mode of bearing* in vines is only on shoots of the present year, proceeding from *year old wood*. The rule, therefore, at winter pruning is, to reserve such shoots of the year that are best situated as to room, for training of those shoots that *are* to come from them, which will be almost one from every eye. Make choice of those that are placed most towards the middle, of stem of the vine, that all the wall may be covered with bearing wood; and every year cut some *old wood* out that reaches far, to make room for younger to follow.

The *form* that a vine takes on the wall is various, and not very material, whether it be more horizontal or perpendicular. The form must be governed according to the space of walling allotted to it; sometimes it has ample room, as at the gable end of a house, and sometimes it is confined to a low wall, or between trees, windows, &c. The reserved shoots should be twelve or fifteen inches asunder, if they are strong, and weaker ones may be something less: hardly too much room can be allowed them.

The *shortening* of the shoots should be according to their strength and the space there is for training those shoots

shoots that *will* be produced, which always grow very long. If there is room, three, four, or five eyes may be left, but not more to any shoot, except it is desirable to extend some shoot to a distance to fill up a particular space, and then eight or nine eyes may be left, which being repeated again another year, and so on, a vine will soon reach far.

Sometimes vines are trained on low walls by a long *extended horizontal* branch, a few inches from the ground, as a *mother bearer*. Those shoots that come from this horizontal are to be trained perpendicularly, and cut down to one or two eyes every year, that they may not encroach too fast on the space above them. If the *vine* is confined to a narrow but lofty space, it is to be trained to an *extended perpendicular* mother bearer, having short lateral shoots pruned down to a single eye, or at most two. The management of vines requires *severe* cutting, that they may not be too full in the summer, for they put out a great deal of wood, and extend their shoots to a great length; and therefore the young pruner must resolve to cut out enough.

An *alternate* mode of pruning vines is practiced by some, one shoot short, and another long; i. e. one with two eyes, and another with four or five. Severe cutting does not hurt vines, and make them unfruitful, as it does other trees; and therefore, where short of room, they may be pruned down to a single bud, as the case requires.

The *summer management* of vines must be carefully attended to. As soon as the young shoots can be nailed to the wall, let them not be neglected; but remember they are very tender, and will not bear much bending: train in only the well-placed shoots, rubbing or breaking off the others. The *embryo fruit* is soon seen in the bosom of the shoot, and those thus furnished are of course to be laid in, as many as can be found room for, in preference to those shoots that are barren, which nevertheless should also be trained, if they are strong and

well placed, and there is space for them. Rub off all shoots from *old wood*, except any tolerable one that proceeds from a part where wood is wanting to fill up some vacant space. If two shoots proceed from one eye, displace the weakest, or the outermost, if they are both alike, and the *fruit* should not direct otherwise. Vines grow rapidly, and must be nailed to the wall, from time to time, as they proceed, that there may be no rude dangling, which would not only have a slovenly appearance, but in several respects be injurious.

The *stopping* of the shoots is to take place, both as to *time* and *measure*, according to the strength and situation of them, or whether *fruitful* or *barren*. Those *weak* shoots that have fruit, and are rather ill placed, or confined for room, may be stopped at the second, or even first joint above the fruit, early in the summer; but those shoots that are *strong*, and have room to grow, should not be stopped till they are in flower, (in *July*) and at the third or fourth joint above the fruit. In shortening the shoots of the vine, do it about half an inch above an eye, sloping behind a plump and sound one. The *barren* shoots are to be trained at full length, and not stopped at all, if there is room for them, or, at least, but a little shortened towards autumn, as in *August*, because they would put out a number of useless and strong side-shoots, if cut before.

The *side-shoots*, i. e. those little ones put out by the eyes that are formed for next year, are commonly directed to be immediately displaced by rubbing off, as soon as they appear; and if the vine is large, and the shoots slender, it is very proper; but if otherwise, their being left to grow awhile (so as not to get too rude and crowding) is rather an advantage, in detaining the sap from pushing the shoots out immoderately long; and when these are taken off, the lower eye of each may be left with the same view. But the side shoot, that proceeds from the *top* of each shortened branch, should be left

left on; and when it gets long, then shorteneded down to an eye or two.

In order to fruitfulness, vines will need *dress*ing with some sort of manure; for though they grow in vineyard countries on rocky hills, and in very shallow soils, and have done so on some chalky, hot, gravelly hills in *England*, yet some warm spirituous food they must generally have applied, or they will produce little good fruit.

Some people are very fond of *exposing* the fruit of the vine to the full sun, by stripping off leaves; but this should not be practiced till the bunches have attained their proper size, needing only to be ripened, and even then but *little* should be done in this way: The loss of leaves is an injury to every plant.

* * * * *

Fig trees are best pruned early in *October*, (cutting the leaves off) but the more usual time is early in *spring*, as after an *autumn* cutting (if late) they are apt to die down; but if not completely pruned at this time, let, at least, stragglers be taken out, and the rest laid in close without straining: Thus they will be more conveniently covered.

The *mode of bearing* in the fig is, that fruit chiefly comes the present year on the little shoots from wood of the *preceding*, and that towards the *ends* of the branches; which circumstances dictate the rules for pruning: Two years old wood will bear some, but older wood never.

The shoots, during summer, are to be laid in at full length, plentifully, as room will permit. The weak, ill-placed, or superabundant ones, cut clean out; yet rather break, or rub them off, in an early state of growth, for cutting branches or shoots in summer is apt to make them bleed, as it is called; i. e. the sap run; when cut in *autumn*, the fig will sometimes bleed for a

day or so, but if late cut in *spring*, the oozing will continue perhaps a week.

At the *principal* pruning, the strongest and the closest jointed shoots are to be preferred, and left about seven or eight inches asunder, without shortening. Let the spare shoots be cut out close and smooth, and *as much* of the *old wood* as may be; for the tree will increase too fast, and get too naked of bearing wood in the middle, if this is not freely done; and the essential point in the management of fig trees is, (as indeed of all wall trees) to have *young* wood all over it, and particularly in the middle, and towards the bottom. Wood is seldom *wanted* in a fig tree, but where it is, the *shortening* of a shoot, properly situated, (by taking off the leading bud, or cutting lower, as the case requires) is sure to produce it: Do this in *April*, as the best time.

When hard *frosts* are expected, strew some ashes, and some litter over them, on the roots of fig trees. Mats should be nailed over their branches, (first pulling off the figs) as the succulent nature of their wood makes them tender. These coverings are to remain till the frosts are judged to be over, and then let them be covered up at night, and not by day, for a week or two, to harden them by degrees.

But *fig trees* will mostly survive hard winters, when in standards, without covering; and though shoots trained to a wall are tenderer, yet *peasehaultm* hung close among the branches (at the approach of sharp frosts) will preserve them. This sort of protection, as affording plenty of air, is by many good gardeners preferred to the more common practice of *matting*. But if *mats* were contrived to roll up and down, or kept a little distance from the tree, so as to give more or less air, as the weather is, the health and fruitfulness of the tree would be better insured, for too close (and as it commonly happens in consequence too long) covering is injurious to both. Fig trees that have been close covered are often hurt by

an early uncovering, and yet the spring air, as soon as possible, is desirable.

It is worthy consideration and trial, whether fig trees, against a good wall, would not do best on a *trellis*, as thus, if they have sufficient heat, they would not be forced into wood, which they are apt to have too much of. In this way they might be protected in winter, by tucking in branches of evergreens, fern, &c.

* * * * *

PEARS come next under our consideration, as a few of the best sorts are a good wall fruit.

A *young* pear tree, being planted against a wall in autumn, should not be cut down till *spring*, when the head is to be reduced according to the goodness of the root, and so as to lay a proper foundation for covering the wall. If it has a *bad* root, all the shoots should come off, and only the stem be left, with a few eyes to form new shoots, as was directed for *peaches*, &c. But generally some of the shoots are to be left, with due shortening, only taking it as a rule, that it is not proper to leave much wood on; but to prune down freely, in order to the putting out strong shoots for parent branches. See *heading down*, under the directions for *espalier pruning*.

The *form* of pear trees is to be governed by the wall. If the space allowed the tree is low and long, it must of course be trained perfectly *horizontal*; but if there is room above, and a deficiency of length, the form becomes more erect: Yet even in this case, the lower and more horizontal branches should be allowed to get the start a year or two, before the middle is permitted to fill, which ought not to have any over strong wood, lest it run away with the strength of the tree, and keep the extremities weak. Train the *branches* at length, without shortening, and keep them at from six to eight inches distance, according to the size of the

fruit; remembering it is essential, that the branches be clear of one another, for the sun and air to have free access: Pruners should consider this circumstance, in all trees, more than they generally do. The reason for not shortening the branches is, that wood is always thrown out from two or three eyes below a cut, and so the tree would become a thicket of useless wood, if such cutting took place.

The *mode of bearing* in pear trees is on short *spurs*, which appear first towards the ends, and then form themselves all along the branches, which do not produce blossoms for three or four years from planting, and sometimes (according to the sort, or perhaps soil) for several years more. When they are come to fruiting, some pears bear pretty much on year old wood, some on two, others on three. The same branches continue to bear on spurs from year to year, and most when five or six years old; but as in course of time the branches may become diseased and barren, and not produce so fine fruit as younger wood, it is always proper to procure a *succession* of young bearers, as the opportunity of good shoots offer, cutting out old wood.

As to *projecting* wood, most gardeners allow of it in wall pear trees, though some not. The wood should not, however, be suffered to project above three or four inches; and though there are blossoms at the *ends* of year old wood, yet they should be either cut clean out, or down to an eye or two, for forming fruit *spurs*, as they will often do; though they are more apt to produce only wood shoots. These shoots being cut down again, *tufts* of wood are thus produced, which makes a tree appear ragged; so that whether it is best to cut all spare shoots clean out, or to cut (some of them at least) down to little *stubs*, or false spurs, is hardly yet determined: The advocates for both practices, however, speak very positively for *their* way. The cutting clean out is much the neater, and less troublesome way, and is therefore best, *if* as much fruit is to be obtained by

by it: It has been *said* more may be; but I have not seen it proved.

The *occasional* pruning of pear trees during *summer* is necessary, lest the strength of the tree be spent in vain, the fruit robbed and shaded, and the extremities impoverished. Whether all the shoots that are clearly known to be wood shoots (from their length) should be cut out during summer, is a question, but proceed as follows:

Where *fruit spurs* are wanted, the moderate wood shoots may be left to grow to some length, till the wood is hardened, and then broke off to about six inches, which, being left to the winter pruning, may be cut down to one eye, with the hope of getting a spur there. But even fair spurs should not be suffered to grow too thick: trees bearing small pears may have theirs four inches asunder, and the large six.

Several *summer* shoots will come out about the fruit spurs; yet it is not advisable to cut all of them off as they appear, but only the strong and most unsightly: one moderate shoot may be left to each, and shortened when the wood is hardened, to about six inches, and cut clean out at the general pruning: All superfluous shoots, except those mentioned as allowed of, should be displaced while young; but though rubbing, or breaking off, in all cases are preferable to the knife, do not use this method when shoots are so big as to *tear* the wood with them. Shoots from *spurs* will never come to any thing, and must not be trained.

The time for *general* or winter pruning of pear trees ought to be *November*, as the blossoms are then very discernible, and at spring pruning they get so turgid and tender, that almost the least touch knocks them off, or even the jarring of the tree. What is now to be cut out will be understood from what has been said; only when the bunches of spurs get too thick and projecting, some must *occasionally* be removed, and a thin *sharp* chisel and mallet will do the work well,

where the wood is too strong or awkwardly placed for the knife. When a tree gets to the extent of its bounds, it is to be shortened down to a well-placed young shoot, which may serve for a leader; which leader should be already provided by a provident selection in the summer.

Where *wood* is *wanted* to fill a vacant place, a shoot may be accordingly shortened; but otherwise there must be no shortening, except down to a single eye, with a view (as was said) to forming fruit spurs, where the tree is thin of them. And when *wood* is desired in any particular part, where there is no shoot to cut down for the purpose, a *notch* crosswise (somewhat long), will generally produce it, and the more certainly, if made just above a joint, or knot. Such notching of pear trees does no harm, but rather good; as many choose to do it freely, in order to check their too great aptness to luxuriancy.

The *thinning* of the fruit on pear trees is frequently necessary. They put forth numerous blossoms, and many of them fall, and even the fruit will do so when it is set; but as soon as it is promising (by the healthy shining appearance of the skin) that the fruit will hang, thinning to one pear on a spur, will improve the fruit left, and help the tree: this work do with a small sharp pointed knife.

To check the *luxuriant* growth of pear trees, many schemes have been tried; but the best is here and there to strip pieces of *bark* off, behind the stem, and some of the principal branches, half round, or rather make so many wide *notches*, not going to the pith.

* * * * *

APPLES are *sometimes* planted against walls, &c.

What has been said of pruning and managing *pears* is applicable to them; the branches, however, may be laid in somewhat closer; and they will not require so much room; yet they ought to have from twenty-five
feet

feet in length of a low wall, or on a high one something less.

* * * * *

Mulberries are still more rarely cultivated as wall-fruit.

These trees require good room, as their mode of bearing is mostly at the ends of the trained shoots, which are therefore not to be shortened. Twenty or twenty-five feet should be allowed them, and a new planted tree is to be headed down as directed for *pears*, &c. Train regularly as many shoots as may be in summer, and at winter pruning, lay them about six or seven inches distance. A succession of new wood must be always coming forward, and of course some old taken out, for the fruit is produced chiefly on year and two-year old wood; and as it comes on spurs, and also small shoots of the same year, the leaving short stubs (of moderate wood) in pruning, seems justified, though by some much condemned.

* * * * *

Cherries should be found against walls in every good garden; but plant *young* trees, not more than two, but better if *one* year only from budding.

A new planted cherry tree is best to have but one strong shoot from the bud, and then cut down at spring, so as to have two or three eyes on each side, to lay in well to the wall; but if older and fuller of wood, head it down as will be directed presently, in the article, *Espalier Pruning*.

Cherry trees should be trained at length, four or five inches asunder. The fruit comes from spurs all along the shoots, on one and two years old wood, which will continue to bear. In pruning have an eye, however, to some fair shoots for successors to those that are getting diseased, or worn out. Some cut all superfluous shoots clean away, and others leave a sprinkling

ling of short stubs, which may be allowed; but let them not advance *far* foreright.

The *morella* cherry has a different mode of bearing from others, the fruit proceeding mostly from eyes along the branches of new, or year old wood, the pruner, therefore, is to lay in a proper supply of *young* wood every year, always removing older wood to make room accordingly. For the better opportunity of furnishing the tree with young wood, the bearing branches of this tree should be at six inches distance, and then one young shoot trained between, makes them three inches distant, closer than which they should not be. The *morella* it is clear, ought to have *no* stubs left in pruning, with a view to spurs, nor must any foreright shoots be suffered to grow at all, but let them be *rubbed* off while very young, or rather while in the bud.

The *morella* cherry is commonly planted against *north* walls, where they grow large and hang long, as they are commonly not wanted till late in the season to *preserve*; but if planted upon warmer walls, their fruit is finer, and (when thoroughly ripe) excellent for table use in *September*, or *October*, according to the aspect of their growth: Yet a full south wall may be too hot for it.

* * * * *

PLUMS of the finer sorts are often planted against walls, and deserve a good one.

For the pruning of plum trees, the directions given for *cherries* apply to them, only that the branches should be laid somewhat wider; i. e. at five or six inches, according to the sort, as free, or less free in their growth.

* * * * *

FILBERDS, or other nuts, may be trained. Lay them at full length, the branches about six inches distance,

distance, shortening only the shoots of new planted trees, in order to the furnishing a proper head and spread of branches, which should be kept very horizontal, to check their free growth.

They bear upon the sides and ends of the upper young branches; so that young wood must be continually bringing in, by removing some of the old.

* * * * *

Currants and sometimes *Gooseberries* are planted against walls:

Train the lower branches somewhat horizontal as far as their allotted room, and then train upwards, filling the middle as they grow. Keep the branches about five or six inches asunder. They bear fruit upon young wood, and on little spurs of the old. Superfluous shoots of the trained branches, are to be cut down to little stubs or spurs, about half an inch long, which will throw out fruit shoots and spurs. The mother branches of currants and gooseberries will last many years; but when good young wood can be brought in for principals, a renewal every three or four years is necessary to produce fine fruit. Take care to provide shoots to the very bottom of the wall, that no space may be lost. In the early gathering of these fruits for pies, there should be left a sprinkling all over the trees to come on for eating ripe: They will prove fine.

* * * One *general observation* may be here made: That all fruit trees mentioned since *vines*, are pruned much in the same way, so that the young gardener will not find the business of pruning so intricate as he might imagine, from the number of words severally bestowed on the occasion.

Wall trees are spoken of as to *situation, distance, &c.* in the section of the *Formation of a Garden*, which see, with other particulars.

2. OF PRUNING ESPALIER TREES.

The work of pruning *espalier trees* is much the same as for *wall trees*. The only difference is, that instead of being spread upon walls, the branches are fastened to stakes, or frames, as trellises. The fastenings are commonly ties of osier twigs, bark of withy, bafs, yarn, or soft packthread, instead of nails, which however may be used to frame work, if they are small and sharp pointed. See *formation of a garden*.

As trees planted for *espalier* training should be young, let great care be taken to set them off right at first, by regular shoots, full furnished immediately from the stem; which is effected by proper *heading down*, much as was directed for wall trees. Apples, pears, plums, cherries, &c. in the general need not to be so much freed of all branches at planting, as peaches, nectarines, and apricots: There are however gardeners who prune down to the stem, all sorts of wall and espalier trees, as peaches are.

The *heading down* of a young tree, (i. e. apple, &c.) for an espalier, that has only *one* shoot from the grafting, or budding, should be so low, as to leave two or three, or at the most four eyes on each *side* of the stem, from which will proceed shoots properly placed for training. If the tree has *two* shoots, one on each side, which branch out right and left, so as to be made principal leaders, cut each of them down to three or four eyes. If it has *three* shoots, the upper one, if not over strong, being shortened down to a few eyes, may be trained strait up, and the two lower ones shortened as above, as laterals; and thus a good *foundation* will be made for a proper spread of branches. If it has *four* shoots properly placed for training, two on each side, the lower one may be cut down, to seven or eight eyes, and that above to three or four: If the tree has more shoots, they may be either all cut out to two on each side, shortening as before, or one (if not over strong)

strong) left perpendicular, being cut down to a few eyes: or if the tree is somewhat old, and has a good root, more well-placed shoots may be left on, keeping the lowermost longer than the upper by two or three eyes, making the upper ones very short. If these directions are properly observed, an *espalier* (or a wall) will be properly and presently filled with branches.

The best *time* for heading down is the *spring*, though when trees are planted early in autumn, it *may* be then done. All cuts should be *close* behind an eye. When a strong stem is to be cut down at spring, remember to place the foot against it, to keep the root in its place.

Heading down is advised to be deferred till *spring*, not only on account of frosts possibly injuring the top eye of the fresh cut shoots; but because the head of a tree helps to push out roots. The properest time to prune the heads of new-planted trees, is, when new roots *are* formed; and then a head disproportioned to the roots should by no means be suffered, as the new shoots in such case would be too weak to be healthy, or fruitful. For *planting espaliers*, &c. See section 3.

3. OF PRUNING STANDARD TREES.

The principle of pruning *standard trees* is the same, whether *full*, *half*, or *dwarf* standards; and the object is, to form a compact handsome round and open head, rather small than large, equal on all sides, with tolerably erect wood, capable (as far as the art of the pruner can go) of supporting the fruit without much bending. Perfect symmetry indeed is not necessary, but confusion of branches, weak and crossing, crowded and dangling, is to be prevented by pruning; for a proper (rather free) use of the knife, is capable of doing much towards the beauty and fruitfulness of standard trees. A little pruning of standards every year, and a general one (rather free) every three or four years, to cut

cut out what is decayed, and some of the older wood, where a successional supply of young may be obtained to succeed, is the way to keep them in vigour, and have the best of fruit; for that which grows on old wood, gets small and austere. To take off large branches a thin broad *chissel* is proper; but if a *saw* is used, smooth the part with a knife.

Clear trees from *moss*, by scraping them with a long narrow bladed blunt knife, on a bit of hard wood, and cut, or rub off bits of decayed bark, in which insects are apt to breed, and wipe the part clean. Some use a scouring brush in this business, the long end hairs of which are well adapted to clean the forky parts. A bit of haircloth is also used for the purpose; and a finish is properly made to do the business well, with a brush and soap and water.

In the *first* year of new planted standards, they are to be cleared in the *spring*, of all weak and improper shoots, reserving only a few of the strongest. If there are four regularly placed shoots opposite to each other, it is sufficient to form a good head, shortening them down to a few eyes each, or, (in general) cutting off about one-third may be a rule. What the head will be, may be pretty well foreseen, by conceiving two or three shoots to come from each of the buds below the cut.

If the shoots of the tree are weak, or the root but a poor one, cut the reserved shoots down to two eyes each. If the head is not *regularly* furnished with shoots, a judicious pruner will yet be able to *manœuvre* it into form in a year or two, and this must be effected by close pruning the first year.

The *second* year (rather in spring) attend to the head, and cut out, or shorten, so as to provide for the future form and strength of the tree; reserving only such shoots as recommend themselves for their position and vigour, as widely placed as may be from each other, and but few in number. After this,

this,

his, the head will form *itself*, so as to need only cutting clean out a few superfluities: but no shortening is allowed, except some of the lowest branches, or any one where wood is wanted to fill a vacancy; for which purpose, a weak shoot may do, cut down to one or two eyes.

If trees are *too* full of wood, the shoots must necessarily be drawn weak and long jointed, and so be the less fruitful, and unable to support the fruit they have; but on the other hand, *too* much pruning will occasion a tree to be always putting forth wood, rather than fruit, and so a *medium* must be observed. The branches should be kept about six inches asunder; and as superfluous weak shoots will of course be cut out, so let also the over strong wood: for though it is desirable to have standard trees of able wood, yet those shoots that much exceed the size of the rest, would, if left on, infallibly weaken the others, and make an awkward tree.

Let no shoots remain on the stems, below the head, nor suckers above the roots. With respect to *cherry* trees, rather than cut more than necessary, drooping branches may be suffered, as the fruit is not heavy, and the heads of cherry trees may be fuller than other fruit trees. Wherever a cut is made in a full headed standard to shorten a shoot, it should be (generally) at an eye situated *within* side, that so the shoot from it may point more erectly, as the weight of the fruit is too much for those branches that grow downwards, or quite horizontal.

Gooseberries and *currants* may be ranked under the denomination of dwarf trees, and the principle of pruning them will be the same, as for other standard trees; only more frequently cutting out old wood, to make room for a succession of young. The keeping these trees, or bushes, more *open* than they commonly are, would improve the fruit in size and flavour, and bring it forwarder; yet some of them should be suffered to grow rather full of wood, in order to keep the fruit longer,

longer, especially in a *northern* aspect of the garden or some shady place; and if to this situation and fulness, be added *matting* or *netting*, they may be preserved till *November*.

The *time* of pruning these trees, is commonly held to be indifferent, and any time between leaf and leaf may be adopted to cut them, as opportunity offers. But when they are getting *into* leaf is (perhaps) the best time; as when pruned *early*, there is frequently a loss of almost the whole fruit, by birds eating the buds, or, as some say, insects. Leaving the whole head on till *spring*, is a security as to a crop of fruit, as the case would be bad indeed, if *some* good branches are not left, properly furnished with uninjured buds; but still it is allowed, that an early pruning strengthens the tree, and tends to encrease the size of the fruit.

Currant trees need not be kept so open as *gooseberry*, the branches of which, should be (for *fine* fruit) five or six inches asunder, and as little shortened as possible. Those sorts of gooseberries whose shoots grow in a *curved* manner, may have their long branches, when in fruit, supported with little forked sticks. Keep these trees clear of suckers, and all shoots from the stem, that are within nine or ten inches of the ground.

For planting standards in *orchards*, &c. See section 3.

4. OF PRUNING SHRUBS.

Many shrubs are cultivated for their ornament, and some for their *fruit*; of the latter kind are *raspberries* and *barberries*.

RASPBERRIES bear fruit on little side shoots of the present year, proceeding from stems of the last, and sometimes produce a little on those of the same year. To prune, or dress the shrub, therefore, first cut out all the old bearers, whose wood dies, then cut out close to the stool, all the new shoots, except three or four

of the best situated and strongest, which may be carefully twisted from the bottom upwards, or tied together at the top, or if upright and strong, left to support themselves singly. The best situated, or those standing closest together, near the centre of the stool, and ranging well in the row, are those to be selected. When done, let all straggling shoots between the rows be clean dug out. Shorten raspberries, either just below the bend, or from three to four feet high, according to their strength.

Raspberries must not be shortened in summer; and the time for cutting them is from *October* all through winter, till they begin to shoot at spring, though the former is the best: especially if any thing is to be wanted between their rows. See page 38.

* * * * *

RASPBERRY; is a beautiful and somewhat large shrub, which should be suffered to grow with a full head, like a dwarf standard tree. It bears along the sides of both young and old wood, but chiefly towards the ends, and its branches should, therefore, not be shortened, except with a view to throw out wood. Keep the root free from suckers, and the stem from shoots in its lower part, and prune out weak, luxuriant, straggling, and crossing branches, forming it a somewhat round head, which keep moderately open. Let the stem be freed from lower branches to the height of three, four or five feet, according as the shrub may be desired to approach to a tree. See page 76.

STRAWBERRIES require pruning from the runners during summer, which strengthens the plants, keeps the soil from being exhausted, and gives all a neat air of culture. This work should be particularly followed up in *edgings* of strawberries, that they may not run over the walks: If plants, however, are wanted

wanted for new beds, they must be suffered to run. See pages 39, 78.

The *dress*ing of strawberries consists not only in pruning from runners; but cutting down the great leaves in *autumn* (early) with a scythe; or, which is better, by taking them up in the hand, and using a knife. At this time they must be weeded, and the ground stirred between them, deep enough to cut the ends of the roots a little. Then there should be spread over the beds a *little* rotten dung, or good fresh earth, and all afterwards kept free from the weeds. Let the *surface* of the ground be stirred again in *spring*, and any hollows that may be between the plants filled up with earth, and some dung too amongst it, if none was applied in *autumn*. Thus with good management the delicious strawberry will be had in abundance and perfection.

* * * * *

FLOWERING SHRUBS are of great variety, and the method of *pruning* them is to be determined according to their several *modes of bearing*, of which consider chiefly these; that is, whether they produce their flowers upon the *last* year's shoots, or the *present*; on the *ends*, or the *sides* of their branches. If a shrub bears on the *last* year's shoots, it is evident that it must be cut away no more than is necessary to keep it within bounds, open, and handsome as to its form; in this case, it is the business to cut clean out, or *very* low, what is to be spared. If a shrub bears on the *present* year's shoots, the old wood may, and must be cut down freely, so however as to leave eyes enough for new shoots to proceed from, to make a sufficient head and show. If the shrub bears altogether, or chiefly at its *ends*, no shortening must take place; but if some of the branches are too long, they may be either cut out, or quite low, leaving the shorter ones to bear. If the shrub bears along its *sides*,

shortening is of no consequence, and the desired form may be freely provided for at pleasure.

The *season* for pruning shrubs is generally reckoned *spring*, but *autumn* is better, if not too near winter; as at this time, sharp weather might occasion some of the sorts, (as *jasmynes* and *honeysuckles*) to die down. The *time of flowering* must, in some measure, direct the time of *pruning*. Shrubs that flower in winter, (as the *laurustinus*,) should be cut in spring. Those that flower in spring may be pruned immediately after their blow, or in summer. Those that flower in summer should be pruned in autumn; and those that flower in autumn should be pruned either soon after flowering, or in spring.

Be sure to take off in time, i. e. as soon as discovered, all suckers and over strong shoots from shrubs; by their luxuriancy they greatly impoverish the upper sized branches, which are the fruitful ones, and such large sappy wood looks very unsightly.

The *height* of shrubs in certain situations, is material, and to provide for this, the art of pruning is in great measure competent. To keep them low, cutting down is of course necessary; but it will be well also to make the soil poor if rich. To encourage them to grow, keep trimming off the lower branches, and improve the ground by digging and dressing occasionally.

Flowering shrubs should be better attended to, as to pruning, than they commonly are; for we sometimes find them either wholly neglected, or cut down at random, perhaps, only *sheared* into a little form; and so they make a return quite suitable to the desert of the owner for his neglect. To be crowding full of branches, prevents the production of flowers. Shrubs should not be choaked up from sun and air, either in themselves, or by their neighbours: The larger plants must not be suffered to overshadow the less.

The

The *general* directions already given for pruning shrubs might suffice, but that the young gardener may not have to discover (by observation alone) the proper application of the given rules, he is here particularly directed to the work of pruning a *few* of the more common sorts.

Roses bear upon shoots of the present year, and upon those formed after Midsummer in the past year, but chiefly upon the former. Therefore, they may, or rather should, be cut down low, leaving only three or four eyes to a shoot; except some of those short shoots formed the last year too late to blow then. If rose trees are not close pruned, they will be unable to support the flowers properly. Use a sharp knife, and cut close behind an eye or bud. *Roses* for *forcing* should be pruned in *July* and *August*.

Honeysuckles flower on shoots of the present year, and therefore whether trained to walls, or kept in bushes, should be also pruned close, but not so short as the latter case as the former; for those against walls should be cut down to an eye or two, and those in bushes to three or four eyes.

Sweetbriars flower on shoots of the present year, and therefore should be cut after the manner of honeysuckles. These shrubs (and most others) are seldom pruned down enough; so that in a few years they grow very rambling and unsightly; but if kept compact, will have beauty, as well as sweetness, to recompence our care; and in all cases, a less number of fine flowers (obtained by short and open pruning) is certainly preferable to many indifferent ones.

Lilacs bear their flowers at the ends of shoots of the last year, so of course at spring must not be shortened. If got rambling and crowded, cut either clean out, or very low, what may be superfluous. If they need much reduction, let them be cut down as soon as (or somewhat before) they have got off flower, and then the shoots

that come after will form for blow before the summer is out, for next year.

Laburnham bear along the sides and ends of old wood.

Jasmines should be pruned down close, even to half an inch, and when trained to a wall, the shoots kept rather wide, like vines, (particularly the scarlet trumpet sort) as they bear at the ends of weak shoots of the year; which should therefore (as all others bearing in the same way) never be touched in summer with a knife, but be suffered to grow rude.

Sennas bear also on shoots of the present year, yet are best left rather full of wood: prune them as soon as off flower.

Syringa, or *Mock Orange*, and *Hypericum frutex*, bear along the sides, as well as ends, of old wood, and of course may be shortened.

Spirea frutex, *Guelder rose*, and many others, bear on shoots of the year, and may therefore be pruned short.

Pyracantha bears (chiefly) on two and three years old wood; therefore the oldest wood is to be cut out, and young in every part retained, and at length. The time of pruning should be autumn; but early in spring will do, as the flowers may then be seen.

For the pruning forest trees, see the end of section the tenth. *Berberries*, see page 165.

SECTION XIII.

OF HOT BEDS.

THE dung of animals, but chiefly of horses, is put together for fermentation, in order to form bodies of heat for two purposes. 1. To raise vegetables, flowers, &c. not otherwise to be produced, or, at least, not in perfection. 2. To raise such things, as though
I they

they come in perfection in open culture, yet may be forwarded by artificial warmth.

According to the *quantity* and *quality* of the materials put together for hot beds, the heat will be proportioned as to strength and duration; and by a judicious use in making, and the management afterwards many advantages may be obtained from them. The great point is, to suit the degree of heat to the *nature* of the different plants to be cultivated, that they may have neither more nor less than is *necessary* to promote a regular vegetation.

Two *errors* are common in the use of *hot beds*, forcing or placing in the same bed things of a very *different* nature, as to the climate they grow best in, and forcing with *too* much heat even the tenderest. Though it may not answer our views of haste, the heat of a bed had better be slack than otherwise. A strong hot bed that ought (at least) to be made a fortnight before it is used, is sometimes furnished by impatience in a few days, and various ill consequences follow, which naturally frustrate success.

The *place* where hot beds are worked should be open to the full sun, catching it as early as possible in the morning, and having it as long as can be in the evening, and if not naturally sheltered, it should be screened from the *north* and *north-east* winds by a boarded fence, or rather one of reeds, as from a solid fence the wind reverberates; but straw, or flake hurdles, set endwise may do. A screen of some sort, (and a close clipped hedge is as good as any) not only protects the inclosure from the harsher winds, and confines the warm air, but keeps a rather unsightly work from view, and straws from blowing about, the litter of which is disagreeable. In large gardens, however, they have *detached* grounds for the work of hot beds, where such litter is of no consequence.

Working of the dung is necessary previous to the making a hot bed; i. e. it should be thrown together

in an heap, in a conical form; and when it has taken thorough heat, and has been smoking or sweating for two or three days, it should be turned over, moving the outside in, or mixing the colder parts with the hot. When it has taken heat again for two or three days, give it a second turn as before, and having lain the same time, it will be in proper order for making a good lasting bed with a steady heat. If in any haste, it may be made into a bed after the first heating; but it will be better for shifting again, or even a third time. When dung is ready before wanted, keep turning it over, lest it be too much spent. It will be proper to begin to work *fresh* dung a week or ten days before it is to be used; but if the dung is not fresh, it is only necessary to throw it together for once heating.

Dunghills, from which it is designed to collect materials for a hot bed, should be taken notice of in time, that they are not left to work themselves *weak* by long smoking, without opening and turning over. Beds may be made of dung from a week to a month old.

If heavy *rain*, cutting *wind*, or driving *snow*, should keep the heaps from heating, and the dung is wanted, lay some straw round it, and it will protect and fetch up the heat. If at first putting it together there is not general *moisture* in the dung, it must be given it, by setting water evenly over it as it is laid. This may be done with a hand-bowl from a pail, but it would be better to use a large watering pot. No water must be set to dung when it is got *dark*; this is, however, the colour that it *should* begin to have when put together in a bed, which the directions given for working it will bring it to.

The *size* of a hot bed, as to length and breadth, is (of course) to be according to the *frame*; and the height of it according to the *season*, and the degree of heat requisite to the nature of the *plant* to be cultivated. In a dry soil, a bed may be *sunk* in the ground, from six inches to a foot, to make it more convenient to get at

and manage. But beds made *forward* in the season should rather be on the surface, for the sake of being able to add the stronger *linings*, &c.

The bed should not be of greater dimensions than necessary to hold the frame up firmly, i. e. three or four inches wider every way, though some approve of making it six, which may be proper if the frame is small, as otherwise the body of dung might not hold heat enough for the necessary length of time. As a guide for laying the dung regular, (according to the size of the frame) drive *stakes*, of about the height the bed is to be, at the four corners.

It is the practice of some gardeners, when they *mould* the bed, to take the frame off, and lay it two or three inches thick all over, and then put the frame on again. This is done to guard against steaming, and is proper when the frames are shallow: in this case, the bed must be six inches wider every way than the frame, in order to hold up the mould for the frame to rest upon.

In case of an *insufficient* quantity of good *horse dung*, that of *cows*, *oxen*, or *pigs*, if it is strawy, and not too wet, may be mixed with it, in the proportion of one fourth, or upon a pinch more; especially in an advanced part of the season, or to cultivate things that are only forcing, and do not naturally require heat. In the case of a deficient quantity of proper materials also, some dry old worn-out horse dung may be laid at bottom, and a little of it on the top. *Offal hay* may be mixed as the bed is made; or a little of mown *grass*, or *weeds*, especially for late made beds; but *clear straw*, well wetted may be put at the bottom a foot thick, and reckoned about equal to five or six inches of dung. Cucumbers and melons have been raised upon *straw* beds, mixed with sea coal *ashes*; and thus the rank steam of dung is avoided, which sometimes injures plants, if it does not give the fruit a less agreeable taste than they otherwise would have. *Sea coal ashes* among dung, has been recommended to continue the heat of the bed

and to moderate it, in the proportion of one-fifth or sixth part; *tanners bark* has been used in the same way; and these have been sometimes mixed generally, and at others in layers three or four to a bed.

The *making* of a hot bed is performed thus: lay some of the most strawy dung at bottom, and keep that which appears least worked toward the middle. Let all be *well broke*, and laid evenly without lumps; keeping the ends and sides upright, (or rather hanging over) not suffering them to draw in, lest the bed be made too little for the frame, or should thus catch wet. Having laid it about half a yard high, some gardeners *trample* it with the feet set close, and again when raised a foot higher, and lastly when near finished; but *beating* it down well with the back of the fork is by many gardeners thought sufficient, except indeed the dung be fresh and strawy, and then trampling ought to be used. The *cleaner* dung is, it must not only be more trampled, but more wetted, and the greater quantity of it used. To make beds of *un-soiled straw*, it is recommended to lay it in a pond for two or three days, and then to throw it in a heap to drain and heat a little first.

If any dung is to be used directly from the stable, let it be equally mixed with the rest; but if there is a coldness in the other dung, it will bring the heat forwarder, by laying a good part of the fresh in the middle, which will soon kindle, and spread warmth. The litter that is made use of for this purpose should be *foul*; and if not, it may be made so, by mixing cow or hog dung with it, or rather by collecting the draining from a farmer's muck hill, and sprinkling with it; which helps to fermentation.

The best sort of dung is that of *bean straw*, next *wheat*, *rye*, *oats*, and *barley*. When the season is pretty much advanced, hot beds may be made of *grass* mowings, (as from an orchard) and *weeds*, which is a common practice in the *cyder* countries. These

heats, however, are often too violent, last not long; yet may they be lined with the same materials if done in time, otherwise if a green hot bed gets greatly cool it will not be recovered. A grass bed may be used as soon as warm, but let it not be overweighted by putting on heavy frames, or more mould than necessary. It should rather be worked with hand glasses, or oiled paper covers.

Hot beds are sometimes made of the refuse *bark* of a tanner's yard, and also of *oak leaves*; but these must have *walled pits* for them, of a large size, and are seldom used but in hot-houses. A bark-bed properly made, and managed by forking up at two or three months end, &c. will hold a fair, moderate, and steady heat, four, five, or six months.

The *bark* is to be got fresh, after it has been thrown out of the vats a few days, and if not moderately dry, kept a few days longer to drain, and if the weather is fair, it may be opened to the sun to dry; for it will not ferment if it is put together wet. When it is made into a bed it must be only beat together with the fork, and not trampled. In a fortnight it will have come to a fine heat, for immediate use.

The *pit* should be eleven or twelve feet long, five and a half or six feet wide, and a foot, or a little more, higher than the bark in front, and two feet higher behind, to receive the mould on a body of bark, three feet deep: But if for the cultivation of any thing in *pots*, as there will need no mould, the pits need not be so deep, the pots being plunged in the bark: or the pit may be made level all round, of a depth to hold the bark and mould, on which frames of wood may be set. Let the pit be sunk one third, or one-half in the ground, as the soil about it is dry or not.

To *encrease* the heat of a *dung* bed when it declines, a warm *lining* of straw, or hay, put round it, a foot thick, and laid high up the sides of the frames, will recover it for a few days; but a lining of *hot dung*,
one

one foot and a half wide at bottom, and narrower at top, should be applied first to the back, and in about a week after to the front, *before* the heat is greatly gone off; and if very bad weather comes, there should be a lining of straw all round this. In cases of *great* declension of heat, the *ends* should have *hot* dung applied to them, or, at least, a good thickness of litter, or straw. Lay all *linings* a few inches higher than the bed, to allow for sinking; or, not being laid quite so high at first, add more afterwards, when a little settled. Early made beds may require two or three repeated linings. Should dung of a brisk heat for a new lining be wanting, the old lining may be worked up with what there is, and if shook up with quite fresh (but foul) dung from the stable, do very well.

To *decrease* the heat of a bed, several *holes* may be made in it, by thrusting an iron bar, or a thick smooth sharp pointed stake, up to the middle, which holes are to be close stopt again, with dung or hay, when the heat is sufficiently abated.

The *uses* to which hot beds may be applied are various, but chiefly for the cultivation of *cucumbers* and *melons*, for which see the next section. At the spring of the year, hot beds are commonly made use of for forcing crops of several vegetables, as *radishes*, *carrots*, *cauliflowers*, *lettuces*, *potatoes*, *turneps*, *kidney beans*, *purflane*, *tarragon*, *small sallading*, &c. Fruits of several sorts, as *cherries*, *strawberries*, *raspberries*, &c. are sometimes brought forward by dung heat; as also various *shrubs* and *flowers*, by means of *forcing-fires*. Tender *annuals*, as *balsams*, and other flowers, that necessarily require heat to bring them up; and the less tender, and some even of the hardy sorts, are also cultivated on hot-beds, or other assistance from dung, to produce an earlier blow than could otherwise be had. Directions for which, will be given in their proper places. See Sect. 18.

As to the forcing of *peas*, *asparagus*, and the raising of *mushrooms*, these things are not commonly practised, and it can hardly be expected in such an *initiatary* book as this, to find instructions for them.

SECTION XIV.

OF RAISING CUCUMBERS AND MELONS.

I. OF RAISING CUCUMBERS.

See *Cucumber* in the next Section.

GARDENERS usually provide three crops of *cucumbers* in the season, all of which will be indebted to *hot dung* to produce them; except sometimes indeed, the last sowing be upon cold ground; which, in some situations, and in some seasons, may do very well for picklers. We begin with the *early* crop, which is most valued.

Make a *seed bed* of the size of a one-light frame, (or a two-light were better), from three to four feet thick, and if *ambitious* of being forward, do it sometime between the first and fifteenth of *January*, though some gardeners sow about *Christmas*: But the sooner this work is begun, the more hazard there is of failing, and the more skill and trouble will be necessary to manage them successfully.

The *young* gardener is advised not to attempt this business till the middle of *February*; and then, if he has good fortune, he will cut fruit about the middle of *May*. When he has attained some skill in the work, he may begin sooner; for there is nothing that professed gardeners are so fond of exhibiting, as *early* cucumbers, which is a proof, that no little ingenuity and

and attention is necessary to produce them. All favourable circumstances coinciding, as sowing the forwardest seed in kind, mild and sunny weather, and plenty of dung, with good frames, managed by skill and industry, early cucumbers are sometimes raised in about eight weeks, and later in the season have been raised in six; but near upon three months must commonly be allowed.

A *bed* being ready, agreeable to the directions given in the last section, which may be four feet high in *January*, three and a half feet in *February*, and three feet in *March*, or the medium as a general rule; let it be covered with the frame and lights, raising the glasses a little to let off the steam that will come strongly from the bed.

When the *heat* has been up three or four days in a single light, or a day or two more if a two light frame, let it be taken off, and see that the surface of the bed is perfectly level, but rather rising behind; and if you think the bed is hardly strong enough, the opportunity is given to add a course or two more of dung. Having levelled the bed neatly with the fork, beat it smooth with a shovel or spade, and put the frame and glass on again.

The *temper* of the bed is now to be attended to, that it be not moulded till the *burning* heat is over; a judgment of which may be formed, by keeping two sharp pointed smooth sticks thrust in behind, and occasionally drawing and feeling them, by a quick grasp of the hand. Endeavour to hit the *exact* time, not putting the mould on too soon, as it is liable to burn, nor delaying too long, and so to lose time, and too much of that heat, the bed was made for.

The *moulding* is thus; lay all over the bed about three inches thick of *rich* loose (not over light) and dry earth, and add as much in the centre of the light as will raise a hill eight or nine inches deep, which as soon as warm through, is to be used, except the bed

seem *too* hot, and likely to burn; in which case, draw the chief of the mould aside round the frame, that the heat may have vent in the middle, for a day or two. As it is a thing essentially necessary in the cultivation of early cucumbers, to have *rich* earth, properly *dry*, it should be prepared, and laid by in *autumn*, in some airy shed or hovel. Let it be, if possible, some fresh under turf earth, mixed with about one fourth part of thorough rotten horse dung, often stirred together to incorporate and sweeten.

The *sowing* may be made upon the hill of mould, levelled down to about six inches deep; but if any suspicion of burning (or in short at any rate), it were better to sow in a small *pot* or two, which should be filled with the warm mould, and plunged a little way in, more or less according to the heat of the bed, for if the bed appears to be *over* hot, the pot may be raised from it; cover the seeds half an inch, and add a gentle pressure of the earth upon them. In a bed of proper temper, they will be up in three or four days, and sooner or later, if there is too strong or too weak a heat; though the *age* of the seed will occasion some difference. *Very* old seed (which some gardeners are fond of, as running less to vine, and so reckoned the more fruitful,) will sometimes come up weak, and also rot, when the mould is damp, and the heat not strong; so that seed of two, three, or, at the most, four years of age is to be preferred: That of a year old only comes up certainly, but too luxuriantly.

Whether the first seeds come up, or not, on the *third* day, sow a few more, and so again and again; for the early young plants are incident to failures, from various causes. As the seed must not be sown in wet earth, so if it gets *too* dry, sprinkle the mould to moisten it a little below the depth of the seed; but let it be with water previously set in the frame (in a bottle) to warm. Be sure to give the plants *air*, according to the weather, raising the lights from one half,

alf, to a whole inch; and now, and ever after, while there is a strong heat in the bed, tilt one corner of a light for the steam to pass off on nights, and let a mat hang, or be nailed loosely over the open part, to keep out the wind.

The *pricking out* the young plants is to be done when they are three or four days old, taking them up carefully, and the mould being warm, put three in a small pot, as the common practice is; but no more than two, or one in a *small* pot is a good method. If one plant only is put in a pot, it certainly may be expected to grow stronger, and be continued longer therein, and three of these may be planted close together in the fruiting bed. If only one plant is put in, set it upright in the middle of the pot nearly up to the seed leaves. If two or three are put in, take the mould out of the pot in a basin-like form an inch or a little more deep, as the shanks are, laying the roots smooth towards the centre, and the leaves towards the edge of the pot; cover up to the top, and give the earth a gentle pressure.

If the mould is *very* dry and the bed hot, a little water may be immediately given to the *roots*; but if otherwise, the next day will be best.

Give very little *air* the first day, but afterwards more, as the sun shines or not, or the day is mild or sharp, still or windy. As the plants get older and hardier, air may be given up to two inches, when there is a good heat, and extraordinary fine weather, to three or four inches of tilt: For this purpose, wedges of wood, about four inches thick at the wide end, are proper. If suspicious of the air coming in too *suddenly*, tack a bit of cloth, or mat before the place. *Air* is to be given in different *degrees*, regularly as the weather alters in the course of the day;—a little air in the morning, more as the day advances, and less again as it declines.

Cucumbers will not do well, if the *air* in the bed is long confined, or stagnant: *Sun* is necessary as well as air, but as that we cannot furnish, every advantage that is in our power we should not fail to make use of with care. The plants are to be *nursed*, and preserved moderately warm, by keeping the pots plunged less or more in the bed, placing them towards the outsides of the frame when there is a great heat, and more in the middle when it is moderate.

Keep some *mould* round the inside of the frame, ready to earth up the pots to the rim, as the heat declines. There should not be less than two, or more than three inches depth of mould, in the intermediate spaces of the frame: for when the bed is moulded too thick, it keeps down the heat too much, and occasions *burning*. Young plants should be guarded from *much* sun, if the season is advanced, and especially when the bed is hot. Give air.

Attend to the *weather*, and if rain, snow, or wind, is either of them likely to chill the bed much, provide against it in time, by laying straw round; and if the heat naturally declines much, *line*, &c. as directed, page 174, in order to recover and keep it up, for the plants will soon be spoiled, or lost, if the bed gets cold. They are to grow in the pots till their first rough leaves are two or three inches broad. When there is only one in a pot, a plant (upon a pinch) may grow in it till it blossoms.

Use *water* (soft) but moderately at first, till the roots get spread about the pot, and then wet the shanks of the plants as little as can be helped, if the season is early, or there is little sun. When the roots are got to the bottom of the pot, take care to water to the bottom; but over-much watering of young plants makes them sickly. Once a week, at an early season, will be sufficient, except the heat is very strong in the bed, and the weather very sunny: the water must be in a small degree warm,

warm, and given in the morning towards the middle of the day.

If the *seed bed* is not likely to hold the plants so long as directed, (or nearly) in a free growing state, an *intermediate bed* should be made in *time* to receive them; for it is not proper to plant them out into the fruit bed too soon, lest there be a failure in keeping up its heat to set the fruit, and bring it on. This intermediate bed should be made of proportionate strength, for the *time* it is wanted, and may do at two and a half, or three feet thick; nor need there be any great objection to an intermediate bed, as it tends to insure success, and brings the plants on faster, and saves trouble in keeping up the heat of the seed bed.

Burning is a thing to be suspected when a bed is very hot, and in proportion as the mould is damp; and should therefore be seen to, by drawing away some mould from the bottom near the middle; and if it appears discoloured, of a greyish hue, and caked, let what is so be taken out from all parts of the bed as soon as possible; but take care that in doing it, too much cold air do not get in and damp the bed, or injure the plants. Do this work at the best time of the day, while the sun shines, if it may be, and rather at twice, allowing an hour between. Fill up with fresh and dry mould, and keep the glasses close, till the earth is got thorough warm again. Burning, however, is not of so much consequence now, as when the plants are put out to fruit, for the *pots* may be drawn from the evil; but burnt mould contaminates the air, as well as injures the roots that it reaches to. See *Burning* again presently.

Steaming must be guarded against, and the rank effluvia which rises in the bed at first, and whilst the dung is quite hot, must have *vent* night and day, by raising the lights. A little rise will do on nights; and if a mat hangs before the aperture, or is nailed down loosely over it, the too sudden entrance of cold air will be prevented. But when the strong heat of the bed is certainly over,
shut

shut close on nights, and give but little air in unfavourable days. Rank *steam* is sometimes drawn into a frame from the outside of the bed, occasioned by the *mats* hanging over it; therefore, in covering, it is necessary to keep *up* the ends of the mats, so that the glass only be covered. Danger of steaming arises also from the application of fresh linings, the smoke of which, wind may drive into the frames; so that the lining should either be covered with two or three inches of mould, or which is better, a good thickness of fine hay. Sometimes steam will *insinuate* itself round the frame within, through the bed settling unequally, so that the mould draws from it: Prevent this by filling up the apertures.

Covering up at night has been just directed to be *only* over the glasses, for a reason given. Put the cover on a little before sun set, and take off a little after sun rise, except very bad weather dictate otherwise; yet remember, that *light* is a most necessary article in the welfare of plants, and guard against permitting cover longer than compelled to it. While the bed is in a good heat, one mat is sufficient, but yet if the weather is sharp, more should be used; for if not necessary for the warmth, it will be useful to keep the steam of the bed from being so suddenly *condensed* as to drop on the plants, which would injure them. As the bed declines in heat, and the weather is cold, a thicker covering must be put on; and a very warm covering is made thus:—lay on a mat, and over it a coat of straw, or rather hay, and then a mat on the top, which tack down round the frame. It will help to warmth, to push into the dung some little sticks round the frame, and fill up the space with hay. Covering *round* the bed with straw and *lining* have been spoken to: let the applications be made in time.

The *seed bed*, by good management, may be kept with a good growing heat for six weeks, when the plants

plants being about five weeks old, will be ready for putting into a new bed to bear fruit.

Stopping the plants is to be performed about a week before they leave the seed bed; i. e. as soon as the second rough leaf is expanded, and shews in its bosom the little *bud*, or eye, that produces a runner. This is to be nicely cut off with a pen-knife, or small sharp pointed scissars, or picked out with a needle, though, if it gets forward, it may be pinched off. Soon after this operation, the plant thickens, and will push for runners again, which the stopping is designed to dispose them to; and the effect is an earlier and more plentiful bearing. The practice of stopping is *again* to be performed upon the first runners when they have three joints without shewing fruit.

The *fruit bed* comes now, and it should be made of good materials, duly prepared, and well put together, towards four feet thick. It ought not to be of a size less than for a two-light, but better for a three-light frame; as the heat is more certainly to be kept up a proper length of time, in a full sized frame, without which all the previous labour is lost. Preparations must be made for this bed at *least* a fortnight before it is wanted, in the way directed in the last section.

Before *earthing*, take care that the *burning* heat is over, and that the mould to be used be properly *dry*. Lay it all over the bed not more than three inches thick, (for reasons given, page 180) making hills where the plants are to be set about twelve or fourteen inches depth. A two-light bed (of proper materials) will not be ready for moulding in less than a week or ten days from making; nor a three-light in less than ten days or a fortnight. But if it should be desired to plant out quick, on account of the seed bed having got cold, a security from burning the *plants* is found in forming a hole in the bed, where the plants are to be, two inches deep, and about a foot, or fifteen inches over, and filling up with fresh *cow dung*; through this the heat will not

burn, and if it catches the other parts of the bed, the disease may be easily remedied, in the way before mentioned, without disturbing the plants. Some gardeners place *turf* under the plants, with the grass downwards, to prevent excess of heat; and it helps to keep the mould, in other parts, from burning, to stir it about in time. A preventative used by some, is to put on a layer of five or six inches of *old dung*, when the bed is made. It should seem, that a layer of about three inches of *old bark* might prevent burning. See *Burning*, pages 180, 181.

Planting is to take place as soon as the heaps of mould are warm. Spread the earth on the top a little, and having the hills a full ten inches depth, make a hole in the middle six inches deep, to receive the pot of plants; which pots will be from four and a half to five inches deep, and consequently the plants sunk in this hole a full inch more in mould than they were in the pot; and they will have four inches depth of mould at the bottom, which there should be below the roots. Draw the mould up to the plants, and press it gently between, and to them all round the hillock. It is spoken here of a pot of plants with three, but if only one in a pot, the whole hill must be thrown down to four inches depth, and the plants, with all the mould, set one close by the side of the other, and then filled up and round with the earth of the bed.

To *shift* plants out of the pots with the ball of earth entire about them, put the fingers between the plants, and turning the pot up, give it a gentle tap on the knee, or edge of the frame, and the whole will come out; a little pressure at the same time through the hole at bottom, with a finger of the other hand, will assist: turn the plants up carefully, and place them in so. To secure their coming out whole, water the pots to the bottom the day before; and if not too wet, they will slip out. If the plants hold tight to the pots, when turned up, a long thin narrow bladed knife will

be

proper to loosen the sides. If the mould should fall from the plants, carefully spread the roots in planting, and they will be sure to grow, only their having no mould to them will occasion a little loss of time till they have struck root again. Thus having *settled* the plants, shut the lights close till all is thorough warm, and then give a little air; if the mould put round the pots be dry, give a little water.

Management as to *air*, *covering*, *watering*, *lining*, and guarding against *burning*, *steaming*, &c. is now to occupy the constant attention of the gardener: On these heads, what has been before said may serve for instruction now; only as the season advances, and the plants get strong, the more air and watering may be ventured on, and if the heat of the bed is good, less covering will do. As the season advances, *water* earlier in the morning, or later in the afternoon, so as not to have a full sun come directly upon the leaves while wet; for drops of water act as convex glasses, to draw the rays to a focus, and thus scorches. As the weather may be cool, or the bed gets cool, *water* the more sparingly; and in this case, especially, avoid wetting the *stems* of the plants much. It will be known when water *must* be given, by the larger leaves flagging, without any violent sun to occasion an extraordinary perspiration. Bottles of water may be kept in the frame, which is preferable to that warmed at a fire; yet the latter must be used when there is not enough of the former, to water so deeply as necessary. When the frame gets full of *vine*, it gets full of *root*; and as by this time the days get long, and may be sunny, a good portion of water for the whole may be wanted twice, or, perhaps, thrice a week, from a watering pot.

Air should be given (as before directed) in *fine* weather to a tilt of three inches, or more. While there is *brisk* heat in the bed, give a little air on *nights*. If the bed gets cold, it may be helped by *covering* up earlier and warmer, and uncovering later; though the plants

plants should not be deprived of more *light* than made necessary, through bad weather.

In case of *burning* being discovered, take the burning mould from under the plants carefully, but quickly, as far as can be, without throwing them down : remember to be cautious of *steaming*, and think of *lining* (180) in time, that the plants be not stunted by cold, for when they are materially checked, they hardly ever recover it. Sometimes the application of linings will so increase the heat as to occasion *burning* ; let this be seen to, and (at least) remove a part, and remake it when the violent heat is abated.

Earth up the shanks with *dry* mould, (kept in the frame on purpose) as the plants increase ; and let warm *mould* be added to the sides of the heaps, as soon as ever the roots begin to appear through, or the runners need support ; proceeding thus, from time to time, till the bed is filled up level all over. For this end, keep bringing in a little cold mould frequently, laying it round the sides of the frame. When the bed is filled with mould, it is a good way to *press* it tightish round the frame, about a hand's breadth, to keep the roots longer from the outside.

Some *gardeners* mould the bed all over, as soon as they are satisfied there can be no more *burning* ; but it is best to do it at several times, and *not* sooner than is necessary to cover the roots, and support the runners ; because, where the mould lies thin, the heat comes up better to warm the air in the frame, for the leaves will want warmth as well as the roots.

Train the runners close down regularly with neat pegs, as they proceed in growth, and prune the *tendrils* off as they appear, but take care not to *break* any of the leaves. When the days get long, and prove very sunny, the *shade* of a single mat, for two or three hours in the middle of the day, will be proper, as suppose from eleven to two.

Thus

Thus very *particular directions* have been given, but all much will depend upon *circumstances*, and direction must direct. Let it be remembered, no *neglect* will be borne with. If any imprudent person should set the lights high, to pry into the bed in improper weather, perhaps an early tender crop might at once receive their death blow, though exposed but a very short time. Success in raising cucumbers and melons chiefly depends upon keeping the bed in *dus temper*; the plants being neither burned nor chilled.

Setting the fruit is the practice of most good gardeners, as generally insuring the *embryos* from going off, as they are apt to do at an early season; when so much wind can be suffered to enter the bed, and no bees or insects are about, to convey the *farina* from the male flowers to the female. The male flowers have been ignorantly called *false blossoms*, and so have been regularly pulled off (as said) to strengthen the plants, but they are essential to *impregnate* the female flowers; i. e. those that shew the young fruit at their base: This impregnation, called *setting* the fruit, is artificially done thus:—

As soon as any female flowers are fully open, gather a newly opened male flower, and stripping the leaf gently from the middle, take nicely hold of the bottom, and twirling the top of the male (reversed) over the center of the female flower, the fine fertilizing dust from the male part will fall off, and adhere to the female part, and fecundate it, causing the fruit to keep its colour, well, and proceed fast towards perfection. This business of *setting* the fruit may be practised through the months of *February*, *March*, and *April*, but afterwards will not be necessary; for the admission of so much air as may afterwards be given, will disperse the *farina* effectually; but if the weather still is bad, or remarkably calm, setting may be continued a little longer. If sort of male flowers, one of them may serve to impregnate two females. Pull off all the male flowers as fast

fast as they die upon the vines. Lay a bit of tile, or some such thing, under forward fruit.

Something of *pruning* may perhaps be necessary, if plants will not bear well, either in quantity, or quality, if the frames are *crowded*. The rule (of course) is, to cut out those runners that can be best spared, as being weak, most in the way, or having the smallest fruit of them. But as the fulness is generally owing to the putting in the bed too many plants, the better method is to cut down to the root a *whole* plant; and that in time, i. e. on the *prospect* of being too full of vine: this may seem a great sacrifice, but it will prove a profitable one. Let the discharged plant lay a day to wither, that it may hang not to the others, and break their leaves, in drawing it out while fresh. About *Midsummer*, the frame may be raised, to permit the runners to strike out, and in a fortnight after taken entirely off; though once in a frame, and always in, is better, if convenient.

* * * * *

A SECOND CROP of *cucumbers* may be sown at any time between the middle and end of *March*, if they are to be brought up in *frames*; but if under *hand-glasses*, or *paper covers*, then any time from the beginning of *April* to the middle, is soon enough, at least in *Northamptonshire*. A hot bed, for sowing the seed at this time, need only be from two and a half to three feet thick, and a one-light frame. On this bed also may be sown, in pots, or otherwise, *tender annuals*, and it is a very good time for most of them. Or the seed for plants to ridge out under hand-glasses, may be sown in pots, and placed in other hot beds, to bring them forward till they have been stopped.

What has been said about making hot beds, and sowing, and managing cucumbers, will direct now only at this season, mowings of *grass* may be put round a bed to increase the heat, and will be found useful to lay on the top of dung linings, when sunk.

A few

A *seed bed*, at this time, should have a growing heat for one month, when the plants will be fit (the latter end of *April*, or beginning of *May*) to put either into another two feet and a half hot bed with a frame, or only under *hand-glasses*, &c. which should be rather large, because plants running from under them much before *Midsummer* will hardly endure the weather. Let them be covered up on nights with a single mat; and when they *must* run from under the glasses, sticks, or hoops, may keep the mats off from pressing upon them: fasten the covering down at the corners with pegged sticks, to keep them from blowing away. Let the ground about the bed be stirred, and also raised, to raise the plants level, and to give the roots full room to strike.

For *ridging* cucumbers, that are to have only hand-glasses, or some such cover, observe (as advised) not to sow too forward, for better be rather late, than have the plants cut off, or much injured, just as they are going to bear. The hot bed, or *ridge*, made in *May*, or hand-glasses, should be sunk in a dry soil, two spades deep; and two feet and a half thick of good dung is now enough. The mould that is thrown out (if it is good) may be used to cover the bed; and if not indifferent, may be laid round it, or on it; towards the outsides. Lay on it at first only three inches of mould, except where the plants are to be, at which place lay a depth of about nine inches, rather more than less. It is not necessary that the earth should be *very* dry, as directed for early cucumbers, but let it be warm first to plant in. If it be *Mid-May* before the plants are put out, *holes* of two or three barrows full of dung will be sufficient to bring them on through *May*, and then the season (if it is not bad) will be warm enough to keep them pushing forwards. There should be near four feet distance between each set of plants. Shade them for a few days at first putting out.

Cucum-

Cucumbers not sown till the beginning of *April* may be brought to bear fruit on *one* good bed, if under a large frame; and such a bed would, at the same time, serve very well to sow, or to prick out, *tender annuals*. See section 18, *On flowers*.

* * * * *

A THIRD CROP of *cucumbers* may be sown at any time, from the middle to the end of *May*, (or even a little later) either in a pot or not, upon some hot bed in use, to grow for a week or ten days; or sow upon a little heat of two or three barrows full of warm dung trod close, and previously thrown together for the purpose: or if fresh and moist from the stable, it will, though at present cold, heat itself. Cover the dung with five or six inches of mould, and sow half inch deep and half an inch asunder, under a hand-glass; and when the plants are completely up, thin them to an inch asunder, where let them grow, earthing them up as they get tall, till they show rough leaf. Then prepare more such little bodies of heat to plant them out upon three or four in a patch, which cover with a hand-glass or otherwise, and shade also for a day or two, if sunny. If you can take three or four plants up together by a scoop trowel, with earth to the roots, the better; and if not, plant them pretty near together, laying them aslant, so that the shanks be covered two or three inches. Keep these plants earthed up, and as much under their covers as may be, till towards *Midsummer*, covering the parts that run out on nights till this time. The third crop is that generally sown for *picklers*.

Sometimes, at this season, cucumbers are sown for *picklers* in cold ground, especially about *London*, or south or west of it; but soil, situation, and season, make a great difference in the cultivation of all, and particularly of delicate plants. If any seed be sown on cold ground, let it be in dry weather: give them a favourable

able situation, and sow in *patches* eight or nine seeds in a hole, formed like a shallow basin, covering half an inch deep; and if covered with hand glasses, to bring them up a little while, it were much better. Thin them when getting into rough leaf, to four or five of the best plants; spread them a little, and earth up to the seed leaves, giving a little water; and if, afterwards, the number of plants is reduced to three, it might be better than more. Give plenty of air by day, and a little on nights. Raise earth about the shanks as they grow, and let it lie about them, while the plants are small, in the form of a shallow basin. There should be a good many holes, to produce *picklers* enow for a gathering.

As to saving the *seed* of cucumbers, as it is of some consequence to be *ascertained* of a good kind, when the *early* nature and approved quality of any sort is known, it ought to be an object to save it *well*; which will be best done from plants of the *second* crop, that have been ridged out, i. e. brought up under hand glasses. From this crop *that* plant which shews fruit first (under the same culture) should be reserved for seed, judging that its early disposition may be continued, and because the *first* fruit of any kind (if uninjured) always produces the best seed.

Fix upon *handsome* fruit, and prefer that which is placed lowest, or grows nearest the root. Leave no more than *one* fruit for seed upon a plant, and let it remain on the vines through *August*, or as much longer as the weather will permit, to be very ripe: when cut off, place seed cucumbers against a *south* wall, till they appear decaying.

Being got *rotten* ripe, scoop out the pulp and seed into some vessel, and stir it well up, which repeat for several days; then let it be washed in two or three waters, which will separate the pulp, and leave the seed clean: spread it thin for two or three days, that it may *dry* thoroughly, and putting it up in paper for use, keep it in place free from damp. Let it be every now and then examined

examined and rubbed in a dry cloth, and it may be kept for several years.

* * * * *

OF RAISING MELONS.

See Melon in the next Section.

MELONS are raised much in the same way as cucumbers. They should not, however, be thought of so early, and from the middle of *February* to the middle of *March* will (for most persons) be soon enough to sow them. The place where they are cultivated should be well sheltered, so that winds may blow over the frames, as mentioned in the directions about hot-bed Cucumbers, and more heat, both at bottom and top, and need less water: they take up more room, so that one plant or at most two, will be enough under one full sized light. Cucumbers may be raised on a *seed bed* till fit to plant out on the *fruit bed*; but melons will (generally at least) require an *intermediate* bed. During the whole time of the cultivation of melons, (till high summer) they must have a *lively* bottom heat, in order to bring them forward, and succeed well; and, if melons are sown as soon as *September* enters, a lining of hot dung may be put to the bed, to afford some degree of heat to the outer roots, as an equivalent to the failure of the season. Melons never do well in a shady summer. As cucumbers are about three months coming in, so melons are about four. They set their fruit in about two months and are about the same time in ripening, though forty days will sometimes effect it.

The seed of melons (procured from well ripened and fine flavoured fruit) should be about four years old though some prefer it much older, as judging it so much the less likely to run to vine: If it is too old, however

comes up weak, and is apt to rot, when the mould is not sufficiently dry, and the seed bed not very warm. If new seed only can be had, it should be carried a week or two in the breeches pocket, to dry away some of the more watery parts: The *earlier* the seed is sown, the *older* it should be. Melon seed may be sown in a cucumber bed, that is in a brisk heat, in pots plunged towards the middle; but a bed should be ready to move the young plants into before the cucumber bed gets too cool. Sow only three or four seeds in each pot, and cover a little more than half an inch: The earth in which the seed is sown, should not be so strong as that in which the plants are to grow for fruit. When the seedlings are three or four days old, take them up carefully, so as not to break any of the roots, and either plant one in a small pot, or two in a little bigger; but depend on no plants which do not appear healthy and strong. Sow a few seeds every four or five days, lest accidents happen to destroy the first plants.

As *melons* require skill, and occasion trouble to raise them, the greatest possible care should be taken that the seed is of a good kind. *Melons* should never grow near *cucumbers*, especially if for seed, as the farina of the cucumber may impregnate the blossom of the melon, and give it a watery flavour, or quite alter the nature of

Though *melons* may be sown in a cucumber frame, that is in a good heat, yet rather make a *seed bed*, of about three feet thick; and having put on the frame and light, tilt the glass a little, and when the great heat is abated, put on some dry, rich, and fine, but not very light earth, to the thickness of four inches all over; and the next day, if the mould is not *too* hot, sow the seed, some in the beds, and some in pots, placed just in the middle, which may be drawn up out of the way of any burning heat.

When the plants appear, give them *air*, and beware of rancid *steam* from the glasses dropping on them:

K

They

They may be wiped with a woollen cloth, or turned to dry in fine weather. Consider what was said about cucumbers, concerning too much heat, too little, &c. After the melons have been up two or three days, (as was said before) let them be potted and plunged to the rims, towards the middle of the bed; and the next day a little water (warmed in the bed) may be given the roots; or a little may be given at the same time, if the mould is quite dry.

As soon as the plants are potted, think of making a second bed, to be ready in a week, ten days, or a fortnight, (as circumstances dictate) that so the young plants may receive no check through a decline of heat in the bed where they are. This bed should be stronger than the seed-bed, and rather for a two-light frame, and being moulded as soon as it can be, not to burn, set the pots in, about an inch deep, and in a day or two draw a little mould up round them, and so on again. But if the first bed is warm enough to hold the plants longer, the heat of this second bed (if violent) may be suffered to evaporate a little more first. Here they are to grow till in the second rough leaf, when the plants should be stopped, as was directed for cucumbers.

The third, or fruiting bed, is to be (observe) ready by a few days after the time of this stopping the plants. It should be a strong bed, of four feet thick, and for a three-light frame, and made the higher, the more strawy the dung is. As soon as the burning heat is sufficiently abated, let the bed be covered all over with good dry melon mould (the best is a rich moderately strong loam) three or four inches, and heaps made under each light of about fourteen inches depth. Melons do not fruit well in a light mould, but yet it should not be a heavy one. If the mould is thought too light, let it be pressed a little together to give it consistence.

To a fresh maiden soil, or good earth from the kitchen garden, that is known to be in heart, (by the strength of the plants it has produced) add about one fourth, or

ne third, of *well* consumed *dung*, and it makes a good *manpost*, but it must be completely incorporated by frequent turning and exposing to sun and air, and kept by some means dry, as under a shed, &c. as directed for cucumbers. Much depends on the melons growing in good soil.

The *planting* of melons takes place as soon as the hills of mould are warm through; only if a violent heat is in the bed, a day or two's delay does not signify, the plants are doing well where they are; yet the pots must not be cramped longer in the pots than necessary. Melons require a greater depth of mould to grow in than cucumbers, and the bottom of the roots, at planting, should not be nearer than five or six inches from the dung. Shade them from much sun, till they have taken root.

If the *lights* are small, one plant under each is sufficient, and if large, let there be only two; for melons require much room. It is a great error in the cultivation of melons not to allow it them. Earth the plants with *dry* mould about the shanks as they proceed in growth, and bend them *gently* down with pegs, to give them a regular and snug direction all over the bed. When *fruit* is set, there must be only one of the large, and two of the small sorts, (fair and promising) left on each principal runner, and this runner should be pinched at the second, or rather the third joint above it, which is called *stopping*.

Pruning is necessary, in order to strengthen the bearers, and keep the frame from getting too full of them, i. e. let all *very* strong, and all *weak* shoots be taken out, as also the *tendrils*; but take care that too many *male* blossoms are not thus cut off, for the weak shoots (if not abundant) do no great harm: As in other plants, so in melons, it is the middling shoots that bear the best.

Train the branches all regular (*in time*) with neatness, for it hurts melon plants to lie rude, and to have

their leaves disturbed or damaged, to put them in order. A piece of tile, or a small earthen plate, under each fruit, is proper, to keep it from the damp mould, and to assist its ripening by reflected heat. Three (at the most four) melons are as many as should be left to grow upon one plant; and those are best which are situated nearest the stem, as remote ones are not so well nourished. Do not let a great deal of vine grow below them, lest they be too much robbed, and let them be *stopped* as before directed, for when there is a great length of vine above, nature pushes towards the extremity, and passing by the fruit below, forms more above sometimes to the total loss of the first set fruit.

Keep *mould* round the sides of the frame, to earth up the plants to the very leaves, and round the hills, (a little at a time) as the plants increase, and do not earth all over the bed before it is necessary; for full earthing at first is apt to occasion burning, and afterwards to damp the heat of the bed too much, diminishing also the warmth of the air about the plants. When the bed is earthed all over, *press* the mould all round the sides of the frame, about six inches wide, to make it firm, that the roots may not get too soon to the wood, and mat too much against it, which occasions sickliness.

Do not think of cultivating *early* melons, without plenty of dung both for beds and linings. The particulars of management, concerning *covering*, *shading*, *airing*, *lining*, *stopping* the young plants, *setting* the fruit, &c. and to guard against *burning* and *steaming*, may be seen in the directions already given for *cucumbers*; only less *air*, and much less *watering*, will do for *melons*. Keep them close shut down on nights, when the heat of the bed is become moderate, and cover well. As melons therefore, are kept rather *dry*, they should be shaded a little in *very* sunny weather by a single mat, for two or three hours in the middle of the day; i. e. when the season is forward, especially if the bed itself be in a hot state.

Melon

Melons may be *watered* moderately once a week, in fair weather, or twice if sultry, especially if the mould is light. Early in the season, water a little before noon, and in high summer a little before evening. When the fruit is *setting*, and when getting towards *ripening*, very little water must be given: be sure to water the *extremities* of the roots, but avoid the *shanks*, particularly while the plants are young. A little sprinkling all over the leaves, when the plants get big, but let not a hot sun shine upon them at the time) will greatly refresh them, when it is not thought proper to water the roots thoroughly, on account of the seed being cool. Because much wet is certainly injurious, some gardeners keep their melons exceeding dry; but their leaves should not shew *too* much sign of drought, lest the fruit shrivel for want of moisture. Take care that the heat is kept up at the *setting* of the fruit, or it will become yellow, and fall off. Preserve a good bottom-heat till about *Mid-June*.

Melons should not be *turned* so much about, as is the practice of some gardeners, in order to ripen the fruit all over; for it hurts the *foot-stalk*, distorting its vessels that feed the melons, and so preventing a proper digestion of the juices.

The *flavour* of a melon being preferable to the size, is the reason why water is to be withheld (as much as can be) when they are *ripening*: with it they will become bigger, and so appear finer; but what is quantity without quality?

The young *fruit* need not be fully exposed to the sun; it had better be a little covered with leaves, for much hot sun hardens the skin, and prevents its proper growth. When a melon has nearly attained its size, when, however, a full sun is necessary to ripen it.

As to *cutting* the fruit, if it is to be some days before a melon is eat, (as when carried to a distance) it should not be quite ripe. Its *ripeness* is known by the high colour, and strong odour, and the cracking of the foot-

stalk; and if they give not a full and pleasant *scent* they will not prove good. Always cut melons in the *morning*, and if fully ripe, they should not be kept more than two or three days. If a melon is cut *before* it is ripe, ('tis said) it may be ripened, by wrapping it close up in cloth, and placing it in a heap of warm horse-dung for twenty-four hours. But the better way would probably be, to treat them as unripe *medlars*, which article see, in Sect. 17.

* * * * *

A SECOND CROP of melons is to be had, by sowing (in any other hot-bed, or one made on purpose) from *Mid-March* to the beginning of *April*, according to situation, as in a favourable one the sowing may be ventured on the later. These must be brought up as before till *stopped*, and then ridged out; i. e. when about a month or five weeks old. The method of which is, to make a *trench* in the ground four feet wide, and deep according to the soil: If the ground is dry, it may be from a foot to two feet deep, or otherwise but a few inches. Lay in *hot dung* full two feet and a half thick being well shook and beat together with the fork. This trench must be of length according to the number of plants designed to be put out. For each hole (which should be full four feet asunder) put on good melon earth, laid up in a round hill, to fifteen or eighteen inches high; and then lay the earth, thrown out of the trench, to the sides and top of the bed, about three or four inches thick, breaking it fine, and cover all over with mats to draw up the heat: But never expect *ridged out* melons (particularly) to do well in a light soil. When the earth is warm, put in the plants, two in a hole (or only *one*) giving a little warm water, and cover with large hand or bell glasses, or oiled paper lights, and proceed to manage according to that *discretion* which the directions already given about *melons* and *cumbers* have inculcated.

As the bed sinks, and the roots spread, take care to add a good thickness of mould around the hill, for the plants to strike into, and to keep them up: This may be put in a week or ten days, and it will keep out cold air and wet from the dung: but it is best not done at first. When the plants spread to the extent of the bed, the ground about it should be dug over, and rotten dung buried to raise it to the level of the bed; but, perhaps, this work has been superseded by the necessity of a *lining* to throw in heat.

If the plants are forward enough to *ridge* out in April, or *beginning* of May, it may be proper to make these beds on the level surface, or nearly so, for the sake of *lining*; but if later, they may be sunk as directed above, or deeper still, in a dry soil. Remember, it will be necessary to *line*, if there appears any *likelihood* of a want of heat, before the fruit is *set*, and got a little forward. Do it in time.

If two *ridges* of melon plants, let there be four feet (or more) of alley between them, and then a lining may be applied of that width to heat both beds; and this *middle* heat may be made use of to raise plants for the third crop of *cucumbers*, or tender *annual* flowers, *purslane*, &c. Give ridged out plants *air* on the *south* side. They will need more *water* when in the ridges than in frames, and give it wide, but little about the stem, or hardly there at all; nor let it be applied cold, though a small degree of warmth from the *sun*, or otherwise, will do. This crop need never be shaded but when the leaves hang. When the plants cannot be contained under the glasses, let them be carefully trained out, and covered with mats all over on nights, and on days, in bad weather, till *July*, particularly if much *rain* falls.

With large *oiled paper frames* this work of the *second* crop of melons may be very well managed. The plants should be kept under hand glasses till too big for them, and then the paper lights may be put on, which containing the runners till high summer, they will be safe. Yet

these covers, being set upon bricks, may be kept always on; but let the *fruit*, that happens to be without side, be covered with a *hand glass*, which will help to ripen it. Let the lights be protected in heavy rains, by laying some cloth, or mat, over; and towards the *close* of summer, guard the plants well against much cold on nights.

* * * * *

A THIRD CROP of melons may be sown (in favourable situations) towards the end of *April*, or beginning of *May*, if the former crop was sown about *Mid-March*, and this is to be proceeded with in the same manner as the second. When *September* comes, (as was observed) late melons must be preserved, as much as possible, from cold and wet, that they may ripen. To this end, *glazed frames* may be used over all, or at least *hand glasses* put over each fruit, covering warmly up with mats on nights. Those melons that do not ripen may be used for *mangoes*.

SECTION XV.

OF ESCULENTS.

THE USEFULNESS of esculent plants, as serving for the *food*, *health*, and *pleasure* of man, is pretty generally acknowledged; and that they may not fail to answer these ends in the best way, let them have every attention; and that, not only in their cultivation, but in their *preparation* for the table. Let there be no slight put upon the bounty of PROVIDENCE in ordain-

ing them to our use, by an unnecessary preference to other foods. "There was a time, when bread and herbs (with a little fruit) were the only dainties where- with the tables of the greatest voluptuaries were spread."

"Vegetables and fruits were our innocent, primitive, and natural food; but men's depraved appetites have substituted the shambles; yet, after all, the inventions of the most luxurious and voluptuous *epicure*, the most *Cæsarian* tables would want of their magnificence, noble gust, and grateful relish, without fruit and the productions of the *garden*, which gives the true condiment, and most agreeable closure to all the rest."

"Their use is all our life long, of that universal importance and concern, that we can neither live nor subsist in any plenty, with decency or convenience, or be said to live at all without them: whatsoever contributes to delight or refresh us, are supplied and brought forth out of this plentiful and delightful store of the *garden*."

Let it be a rule to *gather* vegetables of all kinds (designed for the table) in the morning, before much *sun* has shined on them, and lay them by in a cool place till wanted.

* * * * *

ALEXANDER is a culinary plant, formerly much used, but has given way to *celery*; like which it is *blanched* (about a foot high) for use in soups and fallads. The seeds are best sown in drills two feet asunder, and thinned to six or eight inches distance, though they may be sown at broad cast and transplanted. Spring sown plants come in for autumn, and autumn ones for the use of spring.

ARTICHOKE, there are two kinds of, the *globe* and the *conical*. The latter is the hardiest, but the former is generally preferred, both for size and flavour. Artichokes are propagated from rooted slips, or offsets in

April, taken from the mother plant, by drawing the mould aside. As they require a rich soil, and are stationary plants, dig a good quantity of dung in completely *below* the roots for them to strike into, breaking the soil well with it.

The *head* of the artichoke is valuable according to its size and substance, and therefore to a good soil, add good *room*; for though they *may* be planted nearer, yet they would do much better in rows six feet asunder, and three feet apart in the rows. Between these rows may be propagated several sorts of spring or early summer crops. They will reward the trouble of being regularly *watered* in dry weather; suffer them to bear only *one* principal head. *Fresh plantations* should be made every third or fourth year, to have them in perfection. Every year that they stand after planting they should be dug deeply round, and some well consumed manure applied. Cut the heads when the leaves begin to expand, and before the center opens for flowering; and let them have about a foot of stalk, breaking the remaining part of the stem down to the bottom, that it may not rob the root by a waste of sap. At the *spring* dressing, all the suckers are to be taken off, leaving three only of the strongest shoots to fruit. Those without roots will grow by planting deep, and keeping moist.

Let the plants be *protected* from *hard frosts*; at the prospect of which, cut down the stalks and outside leaves to the inner ones, dig between, and earth the plants to near the tops; and if severe weather follows, they should be covered thick with straw, which must be removed when the frost goes. The earthing-up need not be levelled down till *March*, or may be let alone till the time of their dressing, which is best done at the beginning of *April*. If uncovered early, let the litter lay by ready in case of frost to cover again.

To have a long *succession* of artichokes, some slips should be planted at two different times *every* spring,

as

as they bear the same year, only come in later, and with smaller heads than the old plants. If being planted late, they do not produce in the present season, they come forwarder the next summer than old stools do; but remember, a good soil and open situation are absolutely necessary for the *artichoke*. 'Tis of service to lay grass mowings, or some litter, about the roots to keep them cool; for though artichokes should not be planted in a moist soil, on account of frost, yet they thrive best in a cool one. Artichokes that come *late*, may be cut with their full stalks, and being laid up to the head in moist sand, in a cellar, will keep a month, so that they may sometimes be had at *Christmas*.

ASPARAGUS, there is (in fact) but one sort of, as an esculent; but some difference occurs as to size, colour, and flavour, arising from cultivation. In order to obtain large heads, and to have the beds continue to produce the longer, *much* dung is used; but the less of it, the sweeter will this vegetable be, so that in a soil naturally prolific, no dung need be used.

Asparagus *beds* are commonly made from *plants*, but the preferable way is from *seed*, which will be best had from *Gravesend*. The time for both is *March*, rather early in the month than late, though the beginning of *April* may do. The plants should be only a year old, and set in rows a foot distance, and the roots the same, or a little less in the rows.

Making the *beds* four feet and a half wide, there will be four rows of plants, and nine inches left between the outside rows and the alleys, which should be two feet wide. The beds ought to be trenched *full* eighteen inches deep, and enriched with dung that is well consumed, burying it *below* the roots; they will soon strike into the dung, which had best not lay immediately about them. If some mould of rotted *vegetables*, wood pile earth, in the stronger soils; and a little pond mud in the lighter, were mixed with the top soil, it would greatly help the plants; or if none

other manure than a mixture of all these were used through the whole work, it were better. As asparagus beds are designed to last many years, (suppose twelve or fifteen) no pains should be spared to do the work *well*; and if the ground were prepared sometime before hand, or in winter, it would be an advantage, the top soil laying trenched for the benefit of frost. The *alleys*, as well as the beds, should be made good, for the roots of the outer rows will strike into them. A rich sandy loam is the best soil for asparagus, and if the earth is too heavy, or too light, rectify it. The stronger the soil, the higher the beds should lie above the alley, and more rounded; and in very light soils they should lie flat, or rather sinking, to catch the rain.

To *plant beds* of asparagus set the line nine inches from the edge of the bed, and cut the trench *upright*, close to it, so deep that the crowns of the roots lie full two inches below the surface. If the mould of the bed lies light, and is likely to settle much, the crowns of the plants may come to the top, and two inches of mould put on afterwards, which is indeed the best method of planting; but if the ground is not expected to settle, two inches of the top mould must (in this method) be first drawn aside to cover with. The roots must be neatly spread against the trench, and cut as little as possible; i. e. only the damaged parts off. This should be with a sharp knife, and it would be better if done the day before they are used, that the ends may dry and heal. It is of consequence to have the plants dug up *carefully*, with a three pronged fork, that the roots may not be injured.

To *sow beds* of asparagus, make little holes an inch deep, at the distance directed for plants, and having laid three fine seeds in each, near an inch asunder, cover them three-fourths of an inch, which will leave little hollows, to shew their places, and give occasional watering in a dry time, to fetch them up. If the beds were covered with a little haulm, or straw, till the

the plants appeared, it would help them to germinate, in a sunny season they are apt to lie long, especially if the work be not done till *April*. When the plants are above ground fill up the holes. Refresh the plants occasionally with water through the summer, and when they are two inches high, thin the holes to one plant each, and cover the beds with an inch of mould, and they will then be two inches deep, as was directed for plants. The *drawn* plants may be pricked out at four or five inches distance, to make good any deficiencies next spring, or otherwise; but if the plants are not wanted, it will be best to *cut* the spare ones off, which does not disturb the roots of those left. In *October*, when the haulm is decayed, cover the bed with about half an inch of rotten dung, to make them strong and keep out frost; and, in severe weather, put some long litter over all. In *spring*, take the litter off, and gently stir (with a proper fork) the rotten dung in: do so again the next year. Watering asparagus beds with the draining of a dunghill (a rich manure too often lost) in *autumn*, or *spring*, will wash down to the roots, and greatly benefit the lower soil to the increase of the produce: It is worth while to make a rank dunged water for this purpose, for weak or old beds. See p. 53.

Asparagus is *cut* from planted beds in three years, and from sown ones in four; but this loss of a year, will be amply repaid by the superior size and abundance of the heads. If the buds come very fine, a *little* may be cut the year before. A *thin* crop of *onions*, or of *lettuces* to prick out, is commonly had on planted beds the first, and on seed beds the two first years, taking care that none grow just about the plants. The best method of doing this business, is by an intermediate *drill* between each row, and again across them: It were better however to have no crop at all.

The *management* of asparagus beds is, to cut down the haulm, within an inch of the ground, when it turns

turns yellow in *autumn*, clearing of weeds, stirring the ground, and covering the whole over with about an inch of rotten dung before every winter, which is to be forked in at *spring*, not to hurt the plants, and covered with some parings of the mould from the *alleys*, which should afterwards be dug over, if no crop is in them to prevent it. It may seem, that an addition every year to the beds might sink the crowns of the plants too low; but it is their nature to rise as they grow. Besides the rotten dung, as above, there may be laid some long litter over the beds, before severe weather sets in; but the covering of asparagus beds is not simply to keep out frost, (which will not hurt them without much wet) but to keep them warm, that the buds may be forward at spring. A *stump* ought to be kept at each corner of the beds, to shew their bounds, and as marks to pare the alleys up by, which (generally) should lay three or four inches lower.

The *cutting* heads of asparagus should be carefully performed, not to injure adjoining buds that are starting up. Move the mould a little aside to see, and then close by the head, and with a little slope, cut it off about three inches below the ground. The knife should have a long narrow blade, and a proper one is indented with teeth as a *saw*. It may be cut, when from two to four inches high; and let it be regularly done as soon as ready: If it is lain by in a cool place, as in a dairy or cellar, it will keep very well three or four days.

Six *rods* of well planted ground will produce, in the full season, about a hundred a day; and this, as a rule, will help to determine how much room a private family should allot for this vegetable.

BEANS we have several sorts of, differing in size, colour, flower, flavour, hardiness, and time of coming in. Of the forward beans, the *mazagan* is generally preferred, as the earliest, hardiest, most productive, and pleasant. The *Portugal* ranks next to it. Of the

later

water sorts, the *Windsor* stands first, as to general estimation, for eating; but it is in most soils rather an idle bearer. The *long-pod* and *Sandwich*, however, are preferred by some, chiefly as more fruitful. Trials must determine taste; but it may be observed, that the *white blossom* bean is a very good one, if eat young.

Close under a *warm wall* (to which they should be kept by packthread) some *mazagans* may be put in the ground early in *October*; but at the latter end, and the beginning of *November*, is surest, when they commonly succeed at some distance from the wall, *earthing* them up regularly as they proceed in growth. Crop the tops off as soon as the lower blossoms are full out, or begin to fade. This forwards them.

Put the *small* sorts of beans in three inches deep, and four asunder, in single rows; or six inches asunder every way, in double rows; and let the rows, in the first case, be two and a half, and in the latter, three feet asunder.

There is a *dwarf* bean (by some called the *fan-cluster*) that grows but a few inches high, which is very convenient to put in, close under a *south wall*, in *October*, and they will thus be but a few days (if any) later than the *mazagan*, sown in *November*.

'Tis a good way to sow *patches* of beans in a warm corner to stand the winter, placing them about an inch from one another, and *transplanting* them at the above distances, the first mild weather after *Mid-February* or in *March*, to any sheltered part of the garden, and if under a *south wall* (not too near) it will forward them, especially if watered in a dry time. Beans, sown in *patches*, may be easily covered in severe weather, by a *frame*, &c. Make *trenches* to lay them in when transplanted; pull not off the bean adhering to the roots, shorten them a little, and put them in rather highly covered over the shanks. If planted allant, they will soon get erect; but this is only permitted

mitted in case of a shallow soil, or long shanks and roots. If dry, give water.

In *severe weather*, a light covering of peas haulm, or any straw, may be lain over winter beans to protect them, but must be taken off as soon as the weather alters; for too much covering of any thing is as likely to destroy (eventually) as being wholly exposed.

Though the *mazagan* is mostly the bean put in to stand the *winter*, some gardeners sow other sorts for the purpose, (even *Windsors*) which may succeed; but they certainly will not come in so early by near a fortnight, and must have a dry sheltered situation. The *larger* beans must be sown a little deeper, and two or three inches farther asunder than the *mazagan*, allowing a foot more between the rows, especially if double ones, which are best.

If *early crops* of beans *fail*, through severity of the winter, be sure to take the first opportunity of open weather in the new year, to sow some of the early sorts; and if they be covered over with some straw, they will come up the sooner; but remove the covering as soon as the beans appear, if not frosty at the time. Or if a hole be dug near a *south* wall for two or three barrows full of hot dung, covered with six inches of mould, beans may be set very near one another, for planting out, cover the work with straw as before, and thus time will be gained, especially if the beans be soaked a day and night in a warm room.

Succession crops of beans are to be sown every three weeks, or a month, from *November* to *July*; preferring the larger sorts in *February*, and so on to *June*, when the smaller (or early) kinds will be the properest.

BEEF, there are four kinds of, *red, green, yellow,* and *white*, which are used several ways, as *pot* and *sallad* herbs. The large leaves of the white and yellow are sometimes *blanched*, when full grown, for the sake of their thick ribs, being peeled for *stewing*, and eat as *asparagus*, and called *chards*; some say the yellow

yellow is best, though the white is most commonly the sort used. Sow beets in *February* or *March*, thinly, either in drills or broad bast, and hoe them to a foot under: They run to seed the second year. A little also may be sown, early in autumn, for late spring use; but they will be small. The *red* sort is cultivated for its root, and is preserved in winter, in dry sand, as carrots are; and of this there is a turnip shaped sort, that suits best in heavy shallow soils, and a long rooted sort proper for light and deep ones: Beets, but principally the red, require a rich soil.

BOORCOLE, or *cale*, is a hardy green, of which we have two principal sorts, *green* and *brown*, and a little variety is in the leaf, as plain, curled, variegated: The latter is a pretty vegetable when growing, but not so hardy, or so pleasant, at table as the other sorts.

Some sow two crops of this green at the end of *March* and of *April*, but one sowing may suffice; and the first day of *April*, or at least in the first week, is the best time. Sow in an open situation, and in cool ground, and thin the plants in time, that they may be robust, and able to support themselves.

This green should be planted out in rows a yard asunder, and two feet apart in the rows, having been previously pricked out from the seed bed, at six inches, for five or six weeks, to obtain strength for final planting in *June* or *July*.

Let boorcole, and all summer planted things, have a good watering at the time, and again in a few days, if the weather proves dry; and before winter let them be well earthed up to support the plants from the wind and snow, that are apt to break them down, or at least, to set them awry; which, when it happens, should be attended to, to fix them upright again; observe this of all other winter greens.

The heads of boorcole may be cut in winter, and the sprouts come full in spring; but the heads should be frost bitten first. The sprouts should only be topped

topped when gathered, and they will shoot out again below.

BROCCOLI is of two distinct kinds, the *purple*, and the *white*; for the *green*, &c. are only varieties from them; of each, there are large and dwarf sorts, the latter of which is mostly cultivated. All the sorts except the white, generally produce side shoots, as well as a head. The white is called *cauliflower* broccoli because it resembles a cauliflower much, but is not so white. This is not so hardy as the purple, nor is it thought so good; perhaps the *green* may be esteemed the best. Of the *purple* there is an early and a late sort; the former is sowed to come in at autumn, and the latter in spring.

The first day of *April* is a good general time to sow for the *autumn* crop, (though some do it sooner) and the last day of *April* for the spring crop. A little *white* may be sown with the early autumn purple. But it will be very proper to sow again a fortnight after each, and at the end of *May*, for late spring use; which, though they produce small heads, will be very acceptable. Some gardeners sow in *June*, or even the beginning of *July*. Do it in open ground, and see that the young plants are thinned, when quite small, that they may not be drawn up weak; and prick them out when they have got six leaves, to six inches distance, where having grown to a proper robust size, (as about *July*) let them be planted out at two feet, or a little more, asunder. The *autumn* sort should be planted towards a warm wall, lest it come not in at the time. Broccoli requires a *rich* and dry soil; yet watering, in a dry time, is necessary to help their heads to swell, and forward them. Stir the ground about the plants occasionally, and keep them well earthed up. The best broccoli seed comes immediately from *Italy*, whence we first had it; but it degenerates.

BRUSSELS SPROUTS are winter greens, growing much like *boorcole*, and by some preferred as more delicate

ate eating; but they are not so hardy or productive. Their culture is the same as boorcole, only they may be planted out at rather less distance.

CABBAGE, there is a considerable variety of, as to flavour, size, time of coming in, and hardiness. Some are for the use of the table, and others for cattle, though the latter are very sweet before they get solid. The early *dwarf*, early *Yorkshire*, and early *Russian*, are the chief sorts for spring use, and the early and late *sugar-craef* as excellent for summer and autumn.

In *April*, the forwardest cabbages may be tied up, (as lettuces are) to assist them to head and whiten; a practice seldom seen done, but which will certainly be helpful: Use wetted bafs.

Sow for *early* spring cabbages about *Mid-August*; soon after they are up, thin them: in a month, draw the strongest, and prick them out four or five inches apart, where having grown about the same time, they will be fit to plant for spring use; or they may be put out any time after, even in winter; for should frost come directly, it will hardly affect them injuriously. Yet it is a good practice to let some remain in the *seed-bed*, at proper distances, where being well earthed up, (or in very severe weather covered a little) they will survive when those set out are cut off. Plants that are thought too rampant towards winter, may be pulled up, and planted in the same place again, (*November*) and will thus stand the frost better, and not be so likely to run.

Plant cabbages, if in a middling soil, two feet asunder, allowing six inches more for a rich one: There should, however, always be some dung dug into the ground; which not only increases their growth, but prepares the soil for future cropping. If they are planted at *half* the above distances in the rows, taking care to draw every other plant in time for *early greens* (or *coleworts*) it is a very good method, as the ground is better occupied, and the plants protect one another. See *Coleworts*.

The

The *late* cabbages, or those of summer and autumn should be sown early and late in the spring. For early summer uses, sow after *Mid-February* on a little heat or under hand-glasses, on a warm border; the late crops in *March*, to the end of it; and for the latest at the end of *April*; when the small *Russian* sort will answer best.

Sow *red cabbage* seed either about the middle of *August*, or beginning of *March*; but as there is much more bad seed than good of this vegetable, be as careful of the sort as possible; i. e. such as will be solid, and of a deep colour.

CARROT, there is a little variety of, in colour, size, and time of coming in, though not much in taste. We have *orange*, *red*, and *yellow*, but the former is generally preferred. The sort sown for the *first* crop, whether in cold ground, or on a hot-bed, is the early *horn-carrot*. Both this and the late horn-carrot grow short and thick, and are therefore proper for heavy, or shallow soils, as the other sorts are for light and deep ones.

Sow carrots always in good time, as the seed lies long in the ground, and they are, by many persons, coveted early. A few should be sown in a favourable situation, the first tolerable weather in *February*, digging the ground *well* and deep for the purpose; for if it is lumpy, the carrots will grow forked, as they will also if the ground is fresh dunged.

Carrot seed should be mixed with dry sand, or earth, rubbing them well together, in order the better to spread it equally in sowing. Use about twice as much sand as seed, and if earth, it were better to be of a different colour from that on which the seed is distributed, that it may be seen.

If *early* in the month, the new sown beds may be covered with a little haulm, or straw, which will help the seed to germinate, and preserve them from being thrown out of the ground by frost; and this covering should be continued on nights, and taken off by day, when

When the plants are up; which practice being continued for some time, will greatly forward, as well as preserve, the crop. Some people sow in *December* and *January*, if the weather is mild; but for this, (and other circumstances in gardening) *situation* must, in a measure, govern, and discretion determine: In this case, cover the ground with straw, as for radishes; which see.

If a *hot bed* be made for carrots, let it be about two feet and a half thick of dung, and covered with eight inches of sifted mould, as soon as the violent heat is gone off. Sow the seed directly, a full quarter of an inch deep, and if covered with lights, give air sufficient to keep the earth only just warm. A *hooped bed* to be covered with mats may do for this purpose, but in this case, two feet of dung may answer better than more; or if the seed is hurried up, they will be too tender for the protection of such a covering, and the plants will run to top, and not bottom well.

Thin the plants soon to an inch asunder, and in a little time again to three inches, in order to grow to a small size for use; and if not so wanted, at any rate draw some equally, that those which remain may swell properly: Carrots must have a great share of air, if covered with glass.

The *principal* crop of carrots should be sown early in the month of *March*, or before the end of it, and be soon hoed, or thinned by hand, to a small distance, and a while after to a greater; so that together with hoeing and drawing for use, they should at last stand from eight to ten inches distance, according to the soil. This may seem too much, but certainly carrots have, in common, too little room allowed them for attaining their proper size. Let the first hoe be of the breadth of three inches, and the second of six. No consideration should prevail to let carrots stand too long before they are properly thinned.

A few

A few *late* carrots may be sown in *April* and *May* to draw young in the summer ; and some in *August*, to stand the winter, for early spring use ; but carrots that stand the winter grow hard, and are of very little worth.

In *autumn*, let carrots be taken up as soon as their leaves begin to change ; for when they continue too long in the ground, they are apt to get worm-eaten especially in rich soils. Cut the tops off at an inch and lay them up dry and free from mould, in dry sand, a layer of sand, and a layer of carrots. All those that are broken, or cut, should be thrown aside for present spending, as they would decay in the heap, and spread infection to the rest. Those who grow large quantities for *cattle*, stack them in hovels, &c. with a thick coat of straw, bottom and sides, and particularly on the top. In a soil that suits them, carrots turn to good account and are excellent food for *all* sorts of cattle, and particularly pigs.

CAULIFLOWER is sometimes distinguished into an early and late sort ; though, in fact, there is no difference, only as the seed of that called early is saved from the forwardest plants.

The *time* for *sowing* cauliflowers is rather a nice business, but it is generally settled for the 20th of *August* a day under or over. It will be prudent, however, to sow again a few days after, but not earlier, as then they would be apt to form only very little heads, and run up for seed. Let the young plants be timely *thinned* that they may be strong. *Prick* them out when the first leaves are about an inch broad. And as cauliflowers are tender, they will require to be pricked out in the warmest and driest part of the garden. Some of them should be protected under *hand-glasses*, *frames*, or *hoops* and *mats*, shutting up close, and covering the glasses with mats or straw in severe weather : not doing this, however, before the weather makes it *necessary*, and

and always allowing what *air* they will bear, especially towards spring, otherwise they may be disposed to *run*, and will be weak and sickly. Keep them free from dead leaves, and stir the surface of the earth about them. As the season advances, let them be wholly uncovered a fair days, and when they are got forward in *March*, draw the spare ones to plant out, leaving only a single plant under a small hand-glass, and two under a large one; or a few may be drawn out at the end of *February*, if the glasses are crowded. Continue the *glasses* on as long as they will contain the plants, *raising* them upon sticks. The number generally put under hand-glasses in the winter, is from three to five; and if the glasses be on *close* for a few days, it will help them to strike. Those drawn from these, make a good succession crop: but do not prick out, or plant, those that have *black* stalks, for they will come to nothing: Cauliflowers are liable to this defect chiefly in wet seasons. Slugs are apt to harbour about them, for feeding on the leaves, which see to, especially those in frames, and now and then stir the mould about them. The distance which they should be planted is from two and a half to three feet, according to the richness of the soil.

If the *autumn* sown plants are cut off, the earliest opportunity must be taken in the new year to sow some seed on a *gentle* heat, as in *February*, covering with glasses, or only with hoops and mats. From this seed, when it is cold, they should be pricked upon another, where let them grow till planted out to bear. And if those *weak* ones, that have stood all the winter, were pricked out early in the spring upon a little heat, and covered with good mould, it would strengthen and forward them much. In default of dung, sow under hand-glasses in a warm border.

To have a *succession* of cauliflowers till winter, sow on a slight heat, or under glass, in *March*, for plants to follow the first crop; and again in open ground, about the

the end of *April*. If *winter* should overtake some of the latest plants, they may be taken up, when in flower with a ball of earth, and planted or laid in a conservatory or a cellar, where they will swell their heads, and be safe for a month, or more. All the succession crops except the last, should be planted in a *cool* part of the garden.

Cauliflowers require a *rich* soil, and to be kept *moist* during summer, especially when flowering, watering them well twice a week. If the water were *improved* with sheep or other dung, to the strength of about an ounce of salt to a gallon of water, it would help them in size, for cauliflowers are greedy feeders. The ground in which they grow can hardly be too full of dung; nor need there be any fear as to making them rank: a little salt thrown in the water is, however, cleaner, and does away the idea of rankness. When they are watered, the earth may be drawn from the stems, and put to again. As soon as the *head* appears break down one or two of the middle leaves over them to protect from the weather: It preserves them white and cool, and encreases the size. This should be particularly practiced with *Autumn* heads, lest wet or frost spoil them.

CELERY we have three or four sorts of, as the common *Italian upright*, both *hollow* and *solid*, with the *giant hollow*, and *turnip rooted*, or *celeriac*.

For *early* celery, sow in the last week of *February* or first in *March*, on a gentle *hot bed*, or in a warm rich border, under a *hand-glass*, or not. When cultivated so early, it is apt to run, but if only a few plants stand tolerably, it is worth while to try, and even when in a pipy state it does for *soups*. Sow *thin*, cover *loose*, and keep the earth moist; for the seed is slow in coming up if dry weather.

For *principal* crops, sow at *Mid-March*, and again at *Mid-April*.

For a few *late* plants, a little seed may be sown at the beginning and latter end of *May*; and if the ground covered with a *mat*, it will help the seed to germinate, keeping the earth cool, and from air: but it must be taken off, and the ground lightly watered, as soon as the plants appear. If the weather should be very sunny, shade the young plants a little for a few days, by raising the *mat*, or laying some brush wood over.

Prick out the plants in moist weather (if possible) when two or three inches high, at three or four asunder. Water them every other day for a week if dry weather.

Plant *celery* when six inches high, in *trenches* a yard apart, and six inches from one another. In a light soil, the *trenches* may be somewhat deeper; but generally near a spade's depth is proper, and a spade's width, keeping the walls firm and upright. Shorten long roots and high tops, and push off small side shoots.

If the *soil* is not very good, dig in a little well-rotted dung at bottom; but the *celery* will be sounder and sweeter without dung, so that a little fresh earth were better; and though the plants will not come up so large, they will be hardier to resist frost. The *later* *celery* is planted out, the shallower the *trenches* should be.

Water *celery* at planting as at pricking out, and occasionally afterwards in very dry weather, for it likes a moist soil, and will not grow large and tender in a dry one.

Earth up the plants frequently (as suppose every week or ten days, in a growing season) a little at a time, in order to *blanch* them, by which they become soft, sweet, and tender: The *celery* gets tough and rank, when this business is let alone too long. In earthing up, it is a good way to gather the plants close (but carefully) with the left hand, using a trowel, or small spade.

In severe *frost*, lay some long, dry, litter over the tops, which remove when the frost goes. In prospect

of such weather, take up some, and lay it by in dry earth under shelter for use.

Celeriac requires a rich soil, and should have frequent watering to have fine tender roots. Plant in trenches about three inches deep, and earth up, (only once when the plants are about three parts grown, to four inches height. This species is hardier than the others and holds longer in spring; therefore, those who like the solid root should cultivate it.

The seed of celery, (in default of plants) if bruised answers very well to give soup a flavour of it. Parsley seed, &c. may be used in the same way.

CHARDON is a gigantic vegetable of the *artichoke* kind, (now seldom cultivated) used sometimes in *salads* but chiefly in *soups*, or stewed, &c. Sow about the middle of *March*, and end of *April*, in trenches, four feet, or more, asunder, a foot wide, and six inches deep. Drop the seed (which will be near a month coming up) a few inches asunder, and thin them at last to the distance of from three to four feet. They must be watered in a dry time. Those plants that are drawn may be taken up with balls of earth about them, and planted in trenched rows as *celery*, at the above distance and the rows five feet from one another. The leaves only of this plant are used, after they are *blanched* which is done by earthing two thirds of their length up when about three or four feet high, tying neat hay bands first close round them, to within a foot of the top; i. e. blanch when they are full grown, in *August* and *September*, and in about six weeks they will be fit for use. In these months it will be well to water them regularly, in dry weather, to prevent their seeding. If frost cover the tops with straw: It will assist the blanching to lay straw, or offal hay, close round them when tied. This plant is biennial here, but perennial in its native climate, *Spain*, &c.

CHOU DE MILAN is of the *boorcole* kind, and propagated like it, but the plants should be put out at a yard asunder. This is a very good winter green, and stays long

onger than any other at spring before it shows for seed, and is then in its highest perfection.

COLEWORT is a very hardy, small, open headed green, sown in *July*, or early in *August*, for winter and spring use. But instead of the *true colewort*, (a coarse vegetable) it is common to sow the early sort of cabbages as an agreeable substitute, to be eat in their open state. The *sweetest*, however, is the large sugar-loaf sort, sown about Midsummer, which frequently stands the winter.

These plants should be put out for use at from eight to twelve inches asunder, according to the sort as to size, though some gardeners plant closer.

Coleworts are seldom cultivated otherwise than for winter and spring use; but *all* the year it were well for the garden to supply them, as they are, what may be truly esteemed, *choice greens*. With this view, sow cabbage seed of some sort every month.

CUCUMBER has several shades of difference in it, arising from culture and accident; but the common and more distinct green sorts of it, are the *short* and the *long prickly*, the *cluster*, the early *African*, and the *Turkey*. There are also a *white short prickly*, and a *white Turkey sort*; but both are idle bearers.

The *early* nature of a cucumber is the principal object with gardeners, for as much skill and care is exercised to produce forward ones, it is a great drawback to have sown seed *not* of the forwardest kind. Of the seed called early, there is no doubt much difference: How material a thing it is to improve the *breed*, and to be ascertained of the quality of seed for *early* crops, is therefore evident.

The *principal* crop of cucumbers should be the *long prickly*, which is preferable, on the whole, to any other. The *Turkey* grows strait, long, and large; but quality is certainly before quantity, and the cucumber that eats *crispest* is the best. In this respect the *Dutch*, or *white short prickly*, (little as it is cultivated) is, perhaps, even

before the justly admired long prickly, and has fewer seeds: It has an evident difference in taste, and is mostly liked. The *early African* is a very favourite cucumber with some gardeners.

Seed should never be saved, except from spiny, hand-some cucumbers. See, *Of raising Cucumbers* in the last section.

ENDIVE is a *salad* and *culinary* vegetable, of which there are three sorts, the curled *green* and *white*, and the *plain*, or broad leaved. The plain, or *Batavian* endive, is but little used in *salads*, as the curled is so much preferable, though cooks prefer it for stewing. The *green* is the hardiest, and therefore the late sowing should be all of this sort.

Sow endive at three several times, between the middle of *May*, and the middle of *July*, at equal intervals. Some of the first may, perhaps, run for seed; but yet a little should be then sown; as also at the beginning of *August* for late use. Scatter the seeds *thin*, and do not suffer them to grow in clusters to become weak. When the plants are about three inches high, plant them out in an open situation a foot asunder, watering them at the time, and twice or thrice after, till they have taken root. The same sowing will make several crops, drawing the strongest first, and in a week after more. The best heads are produced from robust plants never moved, and which have been well watered in a dry time. Endive should have a rich soil.

Those planted out after *Michaelmas* should be on warm borders; but if long after, (as towards winter) the method of planting is thus, which *blanches* at the same time: Draw earth to an *high* ridge, under a sunny wall, and taking up carefully some full grown endive in a *dry* state, gather the leaves up close, without breaking, tie them neatly with bafs, and put them close together, sideways; i. e. horizontally, in the ridge, almost to the top of the leaves. If any suspicion of wet in them, hang the plants up by the roots, in some covered,

covered, shady, airy place, for a day or so. In severe weather lay straw over all.

Endive in open ground should be protected from sharp frost by peas haulm, or other dry litter. Some may be planted in frames, or under hand-glasses, giving plenty of air, or in a shed, or hovel, open towards the sun, either in the upright, or ridged way.

The *blanching* of endive in open ground is thus:— Gather up the leaves (being dry) when nearly of a full grown size, and tie them regularly, and carefully round, from the middle upwards, moderately close, with *basis*, and earth them up to the middle, if the soil is light and dry, but not otherwise. In two or three weeks, the blanching is effected, after which the endive must soon be used, or it will rot, especially if much wet comes. The object of *blanching* is to take away the bitter taste of the endive, and to make it crisp and tender. Blanch a little at a time, once a week, that it may come in proper succession. See *Succory* (or wild endive) next section.

GARLICK is used for both *culinary* and *medicinal* purposes. The cloves should be planted in autumn, or early in spring, in rows six or eight inches asunder, three deep, and six from one another in the rows, preferring a light dry soil. If the leaves are tied up in knots in *June*, it will prevent their spindling for seed, and help their bulbs to swell. Take them up towards autumn, when their leaves turn yellow; keep them in bags, or hang them up in a dry place.

GOURD, SQUASH, and CALABASH, as of one family; see PUMPKION, the culture being the same.

HORSE-RADISH is variously used for *culinary* purposes: when scraped fine, it is a good addition to *salads*, especially in the colder seasons. Propagate crowns, or pieces of the root from one to two inches long, having an eye or two; set them from nine to twelve inches below the surface of the ground, (according to the nature of the soil, as heavy or light) by digging a trench, and

covering them over, or by making holes with a dibble; this should be the work of *February*, or *October*, and the soil must not only be deep, but rich, or the roots will be weak.

This root will grow finer, and be more conveniently dug, to have the rows two feet, and the sets one foot afunder in them, though a less distance is the more common practice. Where there is plenty of ground, however, it is not worth while to be cramped, and the first year of planting the ground may be cropped with any early things. The roots will not be fit for use the first year; but the second they come strong and warm. Take them up carefully, regularly moving the earth away, and cut off close to the stool, from whence fresh heads will spring.

New plantations of horse-radish should be made about every fifth year; old ones should be cleared from the straggling side shoots, in order to keep the rows open, but take them up deeply.

JERUSALEM ARTICHOKE is cultivated for the root (which eats like artichoke bottoms) and it is an ornamental plant, very like the perennial *sun-flower*, with which it classes, but taller. Propagate in *March*, by planting cuttings of its root, as *potatoes*. The root is red, and full of indented eyes, every one of which is sure to grow. Where it has been once planted, it must be carefully dug up, or it will not easily be got rid of. Any poor ordinary spot of spare ground will do for it. Preserve the roots in dry sand, when they can be no longer preserved in the ground, immediately dug from which they are much best.

KIDNEY BEAN we have two kinds of, *dwarfs* and *runners*, each of which has a rather numerous variety. Both sorts have their admirers, but the dwarf sorts are more generally esteemed, and more conveniently cultivated.

Of the *variety* in the dwarf beans, some come earlier than others; but there is a difference in opinions, which

which is the best, as to earliness and quality. The *yellow* and the *black* are, perhaps, as forward as any. The early *white* is not long behind, and is of superior flavour, but not so hardy as the yellow and black, and some others. The white may therefore be the second crop. The dwarf sorts come in quicker than the runners. For the principal crop, the *Battersea* and *Canterbury* beans are mostly used by the market gardeners, being good and prolific.

Of the *runners*, or climbing sort, the common *scarlet*, and the *white Dutch*, are generally preferred, and when mixed together, their blossoms make an agreeable show, and bear a long time, if the beans are gathered constantly as they get fit for use.

The *dwarf* sorts of this vegetable may be had most months in the year, by the united means of open culture, hot-beds, and hot-houses. In cold ground they are sometimes sown, close under a *south wall*, towards the end of a dry *March*; but *April* is soon enough; for if they get above ground without rotting, (as the seed is apt to do, when the ground is long *wet*) a little *frost* will cut them off. It is a good way to sow again in about a week, lest the first should fail to come up.

The latter end of *March*, however, if some are sown in a warm border, in *patches*, and covered with *hand-glasses*, they will do very well. Or an early crop may be produced by raising the beans, at this time, on a gentle *hot-bed*, and planting them out, when two or three inches high, under glasses, in patches of four or five, and near two feet asunder. If the beans are raised in small pots, three or four in each, they may be turned out whole, with great advantage, as kidney beans do not always bear transplanting well; and they may be covered on nights with hand-glasses, garden pots, &c.

When these forwarded beans are planted in *rows* singly, let it be under a warm wall, and not (if it can be avoided) till the end of *April*, or beginning of *May*; and

protect them awhile at first, on cold nights, with matting, or otherwise.

As to the *hot-bed* culture of kidney beans, if any are attempted to be brought to fruit on heat, let them be raised, towards the end of *February*, upon one gentle bed, (or in pots, at the back of a cucumber frame) and planted out in another, in rows fifteen inches apart, and at four inches in the rows; for nearer they will not fruit well. The bed may be about two and a half feet thick, and must have on it seven or eight inches of mould, and the plants treated with as much *air* as can safely be given them. Line the bed before the heat is quite gone, to preserve and forward them. The force most used for forcing in *hot-houses* is a reddish speckled one; but the early white is fittest for forcing in *hot-beds*, as of lower growth: The early yellow and black may do.

The *common* culture of the dwarf bean, in the proper season, and open ground, is to sow them an inch or an inch and a half deep, three asunder, and two feet, or a little more, to a yard between the rows, according to the size of the seed, for some sorts require more room than others. Let them be earthed up as they proceed in growth; and to have a *succession*, sow every three weeks; remembering that a crop produces more, and lasts longer, the *oftener* the beans are gathered: It is proper, therefore, to do it constantly whilst young and good, even if not wanted.

The *last* crop should be under a warm wall, and may be sown as late as the middle, or end of *July*; and if very dry weather, let the beans for this, and the *June* crop, be soaked about twelve hours in milk and water, and the drills watered, in order to forward their germination, and bring them more certainly and regularly up. It is a good way to prepare the seed for high summer, by laying it in damp mould till it begins to chit, and then planting it in watered drills. In a course of dry
warm

warm weather, kidney beans should be watered, especially while young.

The culture of *runners* is to sow them near two inches deep, four or five asunder, and the rows four or five feet apart. They will require tall brushy sticks to climb upon; but they may be sown in *patches* of about fifteen inches diameter, placing the beans five or six inches asunder, in the circumference, and fixing a pole in the middle for them to run upon. The end of *April*, or beginning of *May*, is soon enough to put the climbing sorts into the ground; and two more sowings, at a month between each, will go through the season; i. e. till frost comes.

If *seed* is saved, let it be only from some of the *first* beans of the principal crop, for all late formed seeds, and particularly of the kidney bean, are not near so good as the early ones, often failing or producing weak plants, and late ill-tasted fruit.

LEEK we have a narrow and a broad leaved sort of, the latter of which is the one generally cultivated. The leek requires a good soil, and open situation. There is a sort with variegated leaves.

Sow in *February*, if the weather is tolerable, or at the beginning of *March*. *Thin* in *April* to three inches asunder, and *plant* them out the first moist weather after *Midsummer*, in rows near a foot apart, and at six inches in the rows; though if the ground be very rich, and the leeks forward, a little more may be allowed to advantage. Trim the tops, and ends of the roots; and it is a good way (if the soil is not heavy) to plant with a dibble, two or three inches in the ground, in order to *whiten* the heads; but to this end some have planted leeks in trenches, and earthed them up high, with a light soil; or coarse sand; at any rate, however, if the rows are wide, earth them up a little.

Towards *winter*, or in prospect of frost, leeks may be taken up, and laid with their roots in sand, or earth, in some conservatory, or cellar. A few may be sown

towards the end of *April*, or even in *May*, to stand over the winter for late *spring* use.

LETTUCE is a vegetable, of which there is a great variety. The *brown Dutch*, and the *green cabbage* lettuces come earliest, and are mostly to be depended upon to stand the winter; though some other sorts will, except the *silver cofs* and *white cofs*. The *brown* and the *green Egyptian cofs* are excellent, being hardy and large, forming close heads; but the latter is earliest. The *cabbage* lettuce eats moderately well, but is chiefly used in soups, &c. The *Silesia* lettuce is much admired by some, though at present but little cultivated: There is a brown and green sort of it.

For *winter* and *spring* use, the hardier sorts are sown in *July*, *August*, and *September*, but chiefly in *August* when if three sowings are made, the beginning, middle and end of the month, it will generally be found sufficient. They may be sown, however, all *September* or even at the beginning of *October*, and it may be stand when older plants are cut off.

For *summer* use, the *white cofs*, and any of the others may be sown on warm borders, either in open ground or under hand-glasses, or other cover, in *February*, and a little constantly every fortnight, or three weeks after, choosing cooler ground for them when summer advances. Plant them from ten to fourteen inches asunder, according to the size they attain; it being an error to put lettuces out so near as many do, for it forces them to run for seed, and prevents their growing large: The sort called the *admirable* should be allowed eighteen inches. Lettuces may be *pricked* out very young; and when three or four inches high is the best time for planting them.

It is not a *common* way, but spring sown lettuces will be forwarder and larger if sown thin, and only thinned out to their proper distance: Those that are drawn may serve for a second crop. The *brown Dutch*, *green capuchin*, the *tennis-ball*, and *button* lettuces, do not

run up so soon for seed as the other sorts, and are therefore proper for *late* summer use. To forward early spring sown ones, a slight *hot-bed* may be made, and by all means ought to be some time in *February*, if those that were to have stood the winter are cut off. When these plants are an inch high, they should be pricked out, four inches asunder, upon another gentle hot-bed; and when they meet, or are four or five inches high, draw every other to plant out in open ground, and let the rest remain to cabbage.

Winter lettuces, that are forward, are more likely to be destroyed than the smaller, as the wet hangs in them; let them be covered with frames, hand-glasses, or hoops and mats; but covered plants must have a great deal of air at all opportunities. Winter lettuces require a dry soil and situation, and a wet one is helped by planting them on hillocks, which is a method that frequently saves them from rotting: Those in the open ground are often destroyed by grubs lurking about the roots, which evil should be seen to, if suspected.

To have *fine winter lettuces*, some of the forwardest may be taken up with balls of earth about them in *November*, and planted at nine or ten inches distance, on a somewhat strong *hot-bed*, which, as soon as the great heat is certainly over, should be covered with six or seven inches of dry mould for the purpose, but give a little water just about the roots: *Line* the bed when it gets cool. Lettuces must be well attended to, to give them plenty of air, pick off dead leaves, cover on nights, &c. Frequently stir the surface of the mould, and give water as occasion may dictate. The *cabbage* lettuce succeeds best in hot-beds.

Tying lettuces with *bafs*, from the middle upwards, when about three parts grown, will somewhat help them to whiten and cabbage; but let this business be done carefully. Some gardeners do not think it worth while to practice it; and indeed, right good sorts (as to seed) will cabbage themselves, and open ones it is

of little use to ; yet this assistance should be adopted for the *first* crop.

Lettuces are sometimes sown *thick*, to draw young for small *sallading* ; for which purpose, the *lap* and *cabbage* lettuces are the properest, as they eat tenderer and sweeter in their infant state : the *lap* seed is very cheap, and chiefly the sort used.

MELON there is a variety of, in size, shape, coat, and colour of the flesh. The sorts we best succeed with are the *musk*, (or common oblong ribbed melon) the *Roman*, the *Portugal*, and the *Cantaleupes* in variety, as the common rock, the black, the orange, and the silver. The *Roman* and *Portugal* are small, but early. The *Cantaleupes* are justly the most admired fruit, but are not so good bearers as the others.

The *seed* brought from the *continent* (where the melons are much finer than in *England*) seldom succeeds here. Whoever sows it, must not begin too early, must use more heat, and give less water than is necessary for *Denizens*. See, *Of raising Melons*, p. 192.

ONION, we have several sorts, but the *Strasburgh* (oval shaped) is that mostly cultivated, as it keeps the best. The *silver skinned* and *Spanish* (flat shaped) are milder, and therefore by some preferred. The *Welch* sort does not bulb, and it is rank ; but for its being very hardy, is sown thick in *August*, and suffered to stand so for winter and spring use, as a green substitute for others. At this time, also, some of the *Strasburgh* may be sown, and perhaps stand the winter in a good situation. The *Welch* onion is not only hardy, but *perennial*. They are apt to die down in winter, but the roots shoot again ; which, when they begin to do, if earthed over an inch, or so, they will blanch, and eat the milder.

The *small silver skinned* onion is the sort fittest for summer *sallading* and *pickling*. Sow first at the end of *March*, and to have them young once every three weeks after. Chuse poor ground for the picklers.

The true *scallion* is got quite out of cultivation, having given way to the *Welsh* onion; as also to the other sorts, that are made milder *scallions* of, by planting early in spring, those that sprout in the house, which quickly grow. Set them in drills six inches under, and two inches apart in the drills.

For the principal crop of onions, sow the *Strasburgh* or any other, towards the end of *February*, or soon after, though any time in *March* may do, for it is desirable to shun frost: Let the soil be rich. The earliest crops (of course) produce the largest bulbs. As soon as they will bear it, (perhaps in five or six weeks,) let them be thinned either by hoe or hand, to an inch or two apart, and twice afterwards, till each root has full four inches square of ground to grow in.

Onions will *transplant* when five or six inches high, taking care to give water immediately, which repeat; but the soil to which they are removed should be rich and well broke. In this way, those whose crops have failed may be supplied from other gardens. If any onion seed is sown, that comes directly from *Portugal* or *Spain*, it will be very large the first year, and should have six inches room allowed them to bulb finely.

Crops of *onions* should be kept very *clean* from *weeds*, and it would be of advantage to water them once or twice a week in dry weather. In *July* or *August*, when the leaves begin to dry at the ends, shrink and turn yellow, let them be bent down close to the ground, with the foot, rake, or back of a spade rather hard. In about ten days after, let them be drawn in dry weather, and laid to harden by the sun, turning them every two or three days for a fortnight. *House* them clean and dry, into neither a warm, nor damp, but close room; laying them thin, frequently looking them over in the winter to pick decayed ones out, which would damage the rest; But onions are best kept *strung* and hung up.

PARSLEY,

PARSLEY, broad leaved, as an esculent *root*, is commonly called *Hamburgh* parsley, and is eat as carrots. Sow it early in *March* or *April*, either at broad cast or in drills, and leave the plants six inches asunder. The roots may be preserved in sand; but it is the practice of some to sow at *Midsummer*, to draw them young in winter, being best when fresh dug. See *parsley*, next section.

PARSNEP is a sweet and valuable root, less cultivated than it deserves, being accounted very nourishing. As *carrots* require a light soil, so the *parsnep* does a strong one. Sow about the end of *February*, or early in *March*, digging the ground well and deep. If the soil is light, tread the seed in twice over to fasten it in the ground; it comes up in about three weeks. *Thin* when about two inches high, with a small hoe, and afterwards with a large one, so as to leave the roots in a good rich soil, a foot asunder, though eight or ten inches will do in light, or indifferent land. Any thing that is to go off quick, may be sown with *parsneps*, as *carrots* to draw young, *radishes*, *lettuces*, &c. *Parsneps* are not good till arrived to maturity. These roots are to be taken up, and preserved as *carrots*; but they may remain longer in the ground, and are seldom hurt by frost, so that some of the roots are commonly left undug till spring; take them then up for use *just* as they begin to shoot, if they are not wanted for seed; when they will keep good in sand till *mid April*.

PEA, we have a considerable *garden* variety of, arising from the size, time of coming in, colour of flower and fruit, and somewhat in taste. The principal distinction is made, as to *early* and *late* peas, so that if the earliest pea is sown at the same time with one of the latest, there will be three weeks difference in their bearing, and a fortnight is usually reckoned between the common *hotspur* and *marrowfat*.

The

The *early frame pea* (which is that forced in hot beds, &c.) may be sown under a warm wall at the middle, or rather at the latter end of *October*, or beginning of *November*, and being kept regularly earthed up, will commonly survive the winter, and produce peas by the end of *May*: Do it in short rows, a yard asunder, at right angles with the wall, or rather inclining a point to the *east*, to catch the first sun.

The *frame pea* is not a good bearer, either in the size, or number of its pods, and therefore the *hotspurs* being hardier and more prolific, are sown by many gardeners for their *earliest* crop, and the difference of coming in is often but a few days. The *frame pea*, however, takes up less room than the *hotspurs*, and in this respect best suits a fruit border, which should not be encumbered with tall crops. *Fancy* will rule in the choice of peas, but the established sorts of the *Reading hotspur*, and *dwarf marrowfat*, are excellent for the summer crops.

The *frame pea* may be sown a quarter of an inch from one another, and the *hotspur* half; it is common indeed to sow thicker, but it is not advisable.

Earthing up peas, and particularly the *early* crops, should be done frequently, a little at a time, in dry weather, beginning when only half an inch high. The *early* peas should have some haulm, or dry straw laid lightly against, or over them, in hard frosts: but let the covering be immediately moved aside when the weather becomes mild.

Sticking peas is to take place as soon as they begin to vine, (put forth tendrils,) or appear too weak to support themselves against wind. Let the sticks be set strait, neat, and full; and by all means *high* enough for the sorts; allowing sticks of three feet above ground for the *frame pea*, near five for the *hotspur*, near six for the *dwarf marrowfat*, and seven or eight for the larger sorts. If short of wood, sticking only the S. or W. side of the rows may do, if the wind does
not

not set very contrary. Some people sow double rows of peas at ten inches or a foot asunder, and set sticks only in the middle, earthing the peas towards them. Peas that are to grow *without sticks*, may be sown, the smaller sorts at two, and the larger at three feet asunder.

The beginning of *December*, more peas may be sown, and towards the end of *January*, or the beginning of *February*, in order to have a full supply at the first of the season: The earliest opportunity in the *new year* should be taken, if those sown before have been cut off, or greatly injured. Peas sown at the beginning of *February* are often not a week behind those of *November*. Peas sown in the winter months in cold wet soils, may have some coarse sand dug in the drills, to preserve them from rotting, and otherwise help them; some also may be strewed over them.

To have a full *succession*, peas should be sown every three weeks in spring, and every fortnight in summer; which may be continued till the middle of *July*, when if some *hotspurs* are sown in a sheltered and sunny situation, they may answer.

The *late*, and large sorts of peas, as the *marrowfat*, *Moratto*, *American*, &c. should be first sown towards the end of *February*, and not sooner, lest they rot.

The dwarf *marrowfats* may be laid in the drills half an inch asunder, the large *marrowfats* three quarters, the *Moratto* an inch, and the *American* two inches, and each sort covered two inches. The *Leadman's* dwarf pea, for it's small size, is admired at genteel tables, and is sweet and fruitful; but rather longer in coming in than the usual late sorts: It escapes the *mildew* better than other peas, and therefore is proper for the latest crops in open ground; It requires sticks only from two to three feet high, and may be sown thicker than any other pea; and till *Midsummer*. On the same day that *hotspurs* are sown, put in a crop of any

any of these *late* peas, and they will come in proper succession; i. e. ten days or a fortnight after.

To save *seed-peas*, let none be gathered for eating, except *late* formed ones; which had better not be left among the rest, for the reason given in the article *kidney bean*.

Peas will *transplant*, and therefore broken rows may be made up, only chuse (if possible) mild and moist weather for the work in *March*, and shade them with a little straw, while they have taken root. If the autumn sown crops were cut off, peas may be sown under *hand glasses* in *January* or *February*, and thus forwarded, planting them out when they have been two or three weeks above ground.

Watering peas in a dry time answers well, and especially when in flower and fruiting. To receive the water there should be ridges drawn towards the earthing up, forming a gutter on each side.

If *slugs*, or other insects attack young peas, strew some *lime* fresh slacked, or *foot* along the sides of the rows, so as not immediately to touch the plants, after which give them a watering, and repeat it a day or two. If the peas are still infested, make another application.

Mice must be guarded against as to *autumn* and *winter* sown peas, by immediately setting traps for them, of which a *number* of the common block ones will be found to answer best, setting one at about every two yards, with fresh baits every two or three days.

Peas do not like *dung*, and will be more fruitful in a moderate soil than a rich one, except the *rouncivals*, of which we have a *white*, *green*, *grey*, and *blue* sort.

Stopping peas (i. e. cropping the leading shoot) is practised by some gardeners, to promote fruitfulness and maturity: This is a reasonable practice, but chiefly relates to the *early* crop.

POTATOE is found to be the most useful root that is cultivated; as a substitute for *bread*, it is most profitably eat without mixture.

The

The *potatoe* raised from *seed*, changes the sorts. Some are denominated *meally*, others *waxy*; i. e. are either of a loose or a firm contexture: The former is best adapted for food, as most farinaceous. They are distinguished again as to *shape*, into round, oval, and clustered.

Potatoes will grow in any soil, but best in one that is light, yet cool and good, especially a fresh one. Season, as well as soil, makes a difference in their goodness, as does the way of boiling them in eating; on which the quality of the water has some effect, and indeed it has on all vegetables, and that is the best water in which they are boiled quickest. The *white* potatoes are generally preferred, but some of the *red* kinds are very good; and the old *rough red* from *Lancashire*, was one of the best ever cultivated. The *kidney* (oval) shaped sorts are most generally approved as boiling or roasting more equally through; and among these, the *red nosed kidney* (a white potatoe) is a great favourite; but many good sorts there are.

The *coarse* kinds of potatoes are given to *hogs*; but whether even for them, *quality* ought not to be preferred to *quantity*, may be considered. The *clustered American* potatoe is reckoned most profitable for cattle, yielding great increase; but the goodness of a potatoe as *food*, is to be estimated by the quantity of *flour* it produces. The *early* potatoes are small, and by common culture are produced in *June*, when soon after their tops change yellow, which betokens maturity. They will keep better in the ground (it being summer) than if taken up.

The *cultivation* of potatoes is various, as experiments and opinions have led: It would be too much here to take particular notice of each method; and to say every thing that might be advanced on this subject.

For *sets*, or *cuttings*, prefer middle sized, well shaped potatoes, and let each piece have one good eye in its middle, or at the most two. They should be set in rows

rows, eighteen inches asunder in a poor soil, twenty-
 ne in a middling, and two feet in a rich one. In the
 former, the sets may be six or seven inches apart, and
 in the latter eight or nine: The *American* potatoe
 should however have more room each way. In a light
 soil, plant them five or six inches deep, and in a
 heavy one only three or four. When planted deep,
 they will not need earthing up above once, but when
 shallow, two or three times. In a light soil, they
 may be put in with a blunt dibble, but in a heavy one
 should be laid in *trenches*; and if the trenches were
 six or eight inches deep, and first filled with long dung, old thatch,
 or short straw, it would be a great advantage, cover-
 ing them up in ridges, and drawing mould to them as
 they settle. Cold, moist ground should be divided into
 beds of two or three rows each, with sunk *alleys*
 between; and as in such a soil the sets should not be
 above three inches deep, the sinking of the alleys may
 be made by earthing the rows up from time to time.
 In a heavy soil make the rows rather wider than in a
 light one, that there be a due quantity of mould for
 earthing.

Early potatoes are procured several ways. On a
hot-bed, some may be planted in *February*, or under
hand-glasses, in a warm border, or without. There are
 early sorts on purpose for this culture, called *mules*, as
 they do not bear feed. As these potatoes are small,
 they may be planted whole, or rather cut in halves,
 paring off the eyes at the crown where they are thick,
 as it never answers to have many shoots come from a
 set; whole ones should be planted a foot asunder, and
 halves at eight inches.

Look over the *flock* of early potatoes, and plant
 those first carefully in trenches that have rooted shoots,
 for they will produce the first fruit, especially if short
 and bushy. Do not expose them so long to the air as
 to get withered. When up in *hot-beds*, or under *hand-*
glasses, let them have plenty of air; and in open ground
 be protected from frost by timely earthing up, and oc-
 casional

casional covering with haulm, or straw, which must not be kept on, but upon necessity. As these early potatoes are on a warm border, a little water in a dry time will forward them, and increase their size. In default of the *true* early potatoe, sets with good forward shoots of any other sort may be treated as above; but they will not be so good.

From *Mid-March* to *Mid-April* is the proper time (earlier or later as the soil is dry or moist) to plant for the principal crop, though *May*, or even *June*, generally produce an increase worth the cultivation. The roots from *late* crops should not be used for planting, as they are more liable to the curl. Those potatoes growing sickly in a wet soil, are also subject to this defect. *Potatoes*, being of superficial growth, should be regularly *weeded*, as long as they can be walked among without treading on the tops.

Ground, designed for a *field crop*, should be twice ploughed, and the first time it should be some weeks before the setting.

In the *potatoe counties*, they *change* their sorts every third or fourth year; procuring fresh kinds from places farther *North*, as a means to avoid the *curl*, which seems to arise chiefly from the tender nature of the potatoe, and admonishes not to be *too* early in planting.

Seedling potatoes are procured by saving the first *thorough* ripe pods, (called apples) and either preserving them in very dry sand till spring, or immediately separating them from the pulp, put the seed up quite *dry* in papers, and occasionally look it over to keep it so. In *March*, or *April*, sow the seed half an inch deep, in a light soil, in drills fifteen inches asunder, and thin the plants to six inches. Earth them up as they grow. Dig them as soon as the haulm dies, and carefully preserving them from *frost*, they will be fit to plant the next spring for table use.

That potatoes are very susceptible of *frost*, is well known; but it is often not sufficiently guarded against

time. Let them be brought in clean and dry. If kept in a warm *cellar*, they may be laid in a *room*, laying some straw at bottom, and when in prospect of frost entering the house, they should be covered with straw, a foot thick.

Pying (as it is called in some places) is a good method of preserving potatoes in winter. They are laid on the surface of the ground, in a rigid form, of a width and length at pleasure, according to the quantity, but commonly about six feet wide. This is done by digging a spit of earth, and laying it round the edge, a foot wide (if turf the better) filling the space up with straw, and then laying on a course of potatoes, dig earth from the outside, and lay upon the first earth. Put straw a few inches along the inside edge, then put in more potatoes, and so on, keeping a good coat of straw all the way up between the potatoes and the mould, which should be about six inches thick all over; beat it close together, and the form it takes in, with the trench all round, will preserve the potatoes dry; and the sharpest frost will hardly affect them; in a severe time of which, the whole may be covered with straw. In the *spring*, look over the stock, and break off the shoots of those designed for the *table*, and repeat this business, to preserve the potatoes longer good.

PUMPKIONS being *tender*, are raised on a moderate *st-bed*, in *April*, or *May*, according to the time desired to have fruit at. After the seed has been up a few days, prick the plants out at four or five inches, or rather put them in small pots, one in each. When a month old, they may be planted out about four yards under, one of the large sorts, or two of the small ones, on a *hole* of two or three barrows full of hot dung, and about ten inches thick of mould. Cover with *hand-glasses*, or *garden-pots*, or hoops and mats, at nights, till *Mid-June*. On such a hole of hot dung they may be sown in *May*, under a *hand-glass*, and there

there remain to fruit. Pumpions will do very well sometimes (in favourable seasons and situations) sown in *May*, on cold ground. The seed should be covered near an inch, and the plants kept earthing up as they grow. When they have shot five or six feet, peg down the runners a little way in the ground, and earth over, they will strike root. *Water* well in dry and warm weather. The *orange* gourd looks very prettily when trained up a strong pole, spirally, or to a wall.

RADISH is of two kinds, the spindle rooted, and the round, of each of which there is a variety. Of the former we have the early *purple*, and the early *pink* short topped, and late large topped ones of both sorts. Of the round there are the *white*, *black*, and *red* turner radishes. The *white* (of which there is a small and large sort) is mostly cultivated, but the others are good; the black grows large, and the red small. The *purple* sorts, and the small white and red eat the coolest. The order of coming in from the time of sowing is the purple, and the pink spindle sorts, and the turner red, white, and black: The latter is very hardy for winter use; but the coarsest.

For the *first* crop, the early purple short top may be sown the latter ends of *October*, *November*, and *December*, (chiefly the last month) in a warm border, and have a chance of surviving the winter, if a little protected in frosts by *stout sticks*, about two inches high stuck sloping in the ground, to support mats; or by laying peas haulm, or *wheat straw*, lightly over them which may be an inch or two thick, as the frost is but no longer than it lasts should the covering be on. The first open weather in *January* and *February* sow again, and in these months, and the preceding one cover the sowing over with some straw, and it will help to fetch the seeds up, and preserve them from being thrown out of the ground by frost, as also from birds. As soon as they begin to appear, let them be uncovered, to harden them to the air, if the weather

not too severe. Thin these radishes to an inch and half, or two inches asunder, though some gardeners let them grow thicker. Radishes sown in any of the cold months (being on borders) lay the ground a little sloping to the sun.

A *hot-bed* is frequently used for radishes about *Christmas*, or in *January* and *February*, which must not be too warm a one, as it would hurry the seed up, and make them grow all top, and come to nothing. Two feet thick of dung is sufficient, on which seven or eight inches of light well broke or sifted mould should be put on, and the seed immediately sown on the surface, (rather thick) and covered half an inch, giving the whole a gentle pressure; for seeds will grow better when the earth is somewhat firm about them. Thin the plants to an inch asunder, before they begin to draw one another up weak; if wider it were better, but room in a hot bed is precious. *Hot-bed* radishes, under glass, must have plenty of *air*, for though covered, are not to be shut down close on nights, except severity of frost demand it. In lieu of frames, a hot-bed of radishes may, in *February*, or after, be hooped, and covered with mats on nights, and in bad weather; and in this way, indeed, they generally succeed best. *Line* forward beds, when the heat declines, that they may proceed in growth, without check or interruption.

Repeat sowing of radishes every three weeks in spring, and fortnight in summer; in cooler ground as the season advances. In dry weather water. Allow three inches distance to those sown after *February*, or rather more for the large topped sorts. The *turnep* kind may now be sown; yet their *best* season is to come in after *Michaelmas*; the small white and red for *summer*, and the large white and black for *autumn* and *winter*, which will often continue good to *spring*: In prospect of severe weather, some of these may be taken up, and preserved in sand, having first cut the tops off short.

Thin

Thin the small turnep sorts to four inches distance and the large to six or eight: Sow the two last sorts in *June*, *July*, and *August*. In *August*, or *September*, sow also some of the other sorts of radishes, for winter use. Turnep radishes are rarely sown on hot-beds; but the small *red* sort will be found an agreeable early crop, and may stand as thick as the spindle rooted kinds.

The ground should be *well dug* for radishes, especially the long rooted sorts, and the *seed* carefully covered a full half inch, leaving none on the top (if possible) to lure birds, which frequently do much mischief to the crop. It is a troublesome mode, but radishes when *drilled* are safer, and being thinned in the rows by hand they come fine. Make the drills for the tap rooted sorts, from two to three inches asunder, but for the round wider. It is also a good method to sow radishes on *beds* four feet wide, and the mould being made fine on the top, beat the seeds in with the teeth of a wooden rake till none appear, and then lightly draw the back of the rake over, to fill up the holes; or, having sown the bed, cover with mould from the alleys, or earth previously drawn aside.

A *sprinkle* of radish seed may be frequently sown among other crops, as *spinach*; and the ground as spring that is designed for *cauliflowers*, may very properly be sown with them, just before the plants are to be set out, or between rows of beans.

Draw the roots for use in a regular thinning way, and those that are left will become the larger for it.

Radishes are sometimes sown thick for eating, while very young in the *seed leaf*, with other small fallading

SALSAFY, though but little cultivated, is a useful vegetable. Its young shoots are eat as *asparagus* in spring, and its long white *roots* in autumn and winter as *carrots*, some of which are taken up, and preserved in sand for winter use. Those left in the ground may be dug up occasionally, or left to produce shoots for spring, or may stand for seed. Sow them early in *March*

March, in drills ten inches asunder, and thin the plants to six. Let the soil be good, and two feet deep if possible.

SAVOY is a cabbage, peculiarly adapted for late autumn, winter, and spring use, as frost improves it, making it tenderer and sweeter than before. The sorts are green and yellow; the former mostly cultivated, as it looks best at table.

If favoys are desired forward, sow a little in a warm border in *February*, or under a hand-glass; but a sowing in *March*, and another in *April*, in an open situation, is sufficient. Thin the seed bed in time, that the plants may be straight and robust; and when about three inches high, prick them out at five or six inches distance, where let them grow to a proper size, (as in *June* or *July*) to plant out at two feet apart, or a little more, in a rich soil. Chuse moist weather for this work, if possible, and give some water. Earth them up as they grow.

Sprouts of favoys are delicate eating spring greens, and therefore if the ground is wanted where the stalks grow, they may be taken up, and laid deep in a trench for the purpose.

SCORZONERA is a carrot-rooted esculent, and therefore requires a deep, and should have a cool soil. Cultivate it as *falsafy*, only let the drills be two or three inches wider, and the plants an inch or two more asunder.

SEA-CALE, or *cabbage*, is a vegetable not generally known, except in *Essex*, *Suffex*, and the *West* of *England*, but it is much liked by many, and as an early spring production is valuable.

Its natural place of growth being the *sea-beach*, it is evident that a sandy soil will suit it best. Some people cultivate it in almost all sand, which, if it is the natural soil of the place, is proper, as such surface sand is endowed with good vegetable principles; but when a soil is made, it should be one half *sharp*, or drift sand, and

and the other half any light rich mould, which may be a little gravelly, or mixed with sea-coal ashes. Sow or plant, either in *autumn*, or *spring*.

It is a root that lasts many years, and therefore should be properly planted and managed; either in beds of the like those of *asparagus*, (the which it precedes for use) of four feet and a half wide, and two feet alleys between, or in single rows of long trenches, which is the better way. They are best raised from *seed*, though often from *offsets*, or *pieces* of the roots, having two or three eyes each.

The *beds* must be trenched, and of a dry loose earth (as said) to two, or two and a half feet deep; and any suspicion of wet ever hanging at bottom, lay a course of rough gravel or stones there. The plants should be near a foot asunder, kept five or six inches below the surface, that they may grow through a body of earth to *blanch* the sprouts; and they are to be cut up four or five inches deep, soon after they appear above ground. In *summer*, the ribs of the large leaves may be peeled, and eat as *asparagus*. They will want earthing up from the alleys every year, to keep them at the above depth; for which purpose, there should be proper earth in them. It is evidently best to *sow*, or *plant*, low enough at first, to be prepared for future earthing up; not to grow too low, however, if there is a clay bottom. *Sets* may be planted at first only three inches deep from their crowns, and earthed up to five or six as they rise: Some do this with *fine sifted coal ashes*, and the effect may also be attained with the *leaves* of trees laid close round. Little should be cut the first year, but the second do it freely.

The *seed* should be dropped three or four in a hole half an inch deep, and thinned to one plant, earthing up a little as they proceed in growth. When the leaves decay in autumn, earth the plants over an inch or two with mould from the alleys. In the spring, loosen the earth carefully with the *asparagus* fork, and at autumn

earth up as before. The following spring, fork again in time, and about *April* there will be plenty to cut; which, if suffered to grow large first, will eat tough and strong. For *seed*, reserve a stool that has not been cut: The *flower* is so pretty (white heads) as to be sown sometimes merely for *ornament*.

SHALOT is a perennial sort of onion, for which it is often substituted, and in some cases preferred, as being more agreeable to the palate and stomach by its rich and mild nature.

The shalot is *propagated* by planting its offsets late in autumn, in a dry soil, or in spring, if a moist one. The latter time is generally adopted as safest; but autumn sets produce the finest bulbs. Plant two or three inches deep, and four or five asunder, in rows, six inches distance from one another. When the leaves wither, dig them up, lest they decay in the ground, as they are apt to do when much wet falls.

SKIRRET (now little known) is a very wholesome root, propagated by seed, as *scorzonera*, and sometimes by offsets of the old roots in spring, planted an inch deep over their crowns.

SPINACH is of two kinds, denominated from the seed, as prickly and smooth; the former is sown in *autumn*, i. e. at the end of *July*, and about *Mid-August*, to gather in winter, and the beginning of spring, being very hardy; and the latter is sown early in the new year for after use, though the prickly sort does very well also for the same purpose. The smooth is rather tender, but it grows larger, with thicker leaves, and is therefore seldom sown otherwise than at broad cast; but the prickly is frequently drilled, as between rows of *peas*, *beans*, &c. Spinach may be sown on pieces of ground, where it is intended to plant cauliflowers, cabbages, or beans, or horse-radish, by dibble.

At *broad cast* hoe thin, and trample the seed in with the feet, rather wide, that there may be a sufficient quantity of mould to rake down over the seed. Hoe

the prickly sort to four inches apart, and the smooth to six or more, in a rich soil. If in *drills* sow also thin and cover an inch deep. Some people thin the plants in drills to three inches distance, and draw every other for use, when those left will grow large, and this may be proper with the smooth spinach; but it is more common not to thin the rows, and to *gather*, by cutting the leaves down low, when more will spring up again. It is a good way to sow spinach in *beds* of four feet, with alleys, that it may be the more conveniently attended and gathered, without trampling the ground. — Gardening in this way of narrow *beds* will, in many cases, be found very agreeable.

To have a full *succession* of spinach, sow in *January* and *February*, and afterwards again in three weeks and then every fortnight, or even oftener, for it presently runs to seed in summer, especially if the plants grow close. Some people are fond of *drilled* spinach as it is quickly gathered, and fancied to eat better; but *broad cast* is commonly reckoned the best way, and gathering the outside leaves, the plant shoots again repeatedly: In spring, however, when the ground is wanted, and the plants are disposed to run, they should be *drawn*. Spinach will transplant in autumn, and thus bear the best seed.

TURNEP we have a variety of sorts of, for table use differing in colour and shape, earliness and flavour. The most common are the *white* sorts; but the *yellow* and red are worthy of trial, particularly the former. The small *early white Dutch* is that mostly cultivated in gardens at least for the first crops, though the *early stone* sort is a very good root.

Turneps are *sown* from *March* to *September*, but in *June* and *July* for the principal crops. Late crops may be sown till *Mid-August*, but they will produce but little bottoms. Those sown in *March* will be apt to run for seed before they have formed much bottom and must be watched to draw them in time. The

turne

Turnep is so favourite a vegetable, that *hot-beds* are sometimes made in *February* and *March* to forward it, though thus cultivated, it can attain but to a very small size. A bed of this sort must be slight, and have a great deal of air from the very sowing. A moderately light soil, with little dung, suits turneps best, and they should always have open ground that is well broke. Mix the seed with a little fine earth, sow thin, trample close, and rake lightly: It is a way with some, to sow one third old seed with the new, for the greater certainty of a crop: the former sometimes succeeding when the latter misses. Do not neglect to *hoe* the crops in time, the early ones to five or six inches, and the late ones to eight or nine, though some large sorts should have more distance allowed them.

When the *fly* is observed to attack young turneps, it will be proper to stir the ground, and sow again immediately, or to chuse another spot for the purpose.

The **NAVEW** (which is much admired by some, and said to be the most nourishing sort of turnep) should be repeatedly sown from *March* to *August*, in a moist ground; but being a small slender root, need not stand wider than five or six inches.

The **CABBAGE TURNEP** is of two kinds: one apples above ground, and the other in it. This vegetable is sometimes used *young* for the table; but it is chiefly cultivated for cattle. Sow it in *May*, or *June*, for autumn use, or in *June*, or *July*, for the *spring*: They are *very* hardy. If sown in a garden, and pricked out, they may be transplanted in fields, the first moist weather after a crop of *oats*, or *barley*, at half a yard in a row, or near two feet in a rich soil; and if the ground is foul, this culture gives a fine opportunity to clean it, by repeated hoeing.

SECTION XVI.

OF HERBS, &c.

ANGELICA is cultivated for the large ribs of its leaves, cut in *May*, or *June*, to make a candied preserve; and it is also a medicinal plant, in stalk, leaf, root, and seed. Sow as soon as the seed is ripe, for in spring it does not come well. Put the plants out when a few inches high, at two feet asunder. It is *biennial*; but if seed is not wanted, cut the stems down in *May*, and the plant will put out side shoots; and by this practice every year, it may be continued long in the same place. A moist situation suits it best, so that some plant it by ditches, or ponds.

BALM is either plain or variegated; but the former only is cultivated as a medicinal herb. It is propagated by parting the root, either in autumn, or spring, but rather the latter. Slip off short pieces with roots, and plant them a foot, or fifteen inches asunder, giving a little water.

The balm that is gathered for *drying* ought to be cut just as it gets into flower; as for this purpose all herbs should, being then in the highest perfection; and it should be done as soon as the dew is off; for if left till afternoon, in a full sun, the plant is exhausted of its juices: Pick off all decayed leaves. Dry it in an airy shady place till fit to tie in *small* bundles, which must be stored by hanging up in a dry airy room, about six inches from one another, till perfectly dry, when lay them in a drawer in a dry room, pressed close, and cover with paper.

Balm

Balm, and most perennial herbs, should be fresh planted in beds every third or fourth year; and each year, in *autumn*, or *spring*, have the ground stirred about them, and dressed with some fresh earth, or a little well consumed manure, the plants being previously cut down.

BASIL is a pretty *annual*, of which we have two sorts, the *large* and the *bush*: (each having a variety) both are used as *pot-herbs*, but chiefly the former. Sometimes also this herb (a *few* of the young leaves) is used in *sallads*, and occasionally in *medicine*. The large grows about a foot high, and the bush but a few inches. They are both sweet, but the *bush* most so. It has a delicate round form, and so is cultivated as ornamental, though its flower is nothing. Both sorts are usually sown on a gentle *hot-bed*, in *March* or *April*, and may be pricked out in small pots, but will hardly endure the open air till *June*. The large is the hardiest, and will come up on cold ground, but be backward. They like a rich soil, and the bush does best in one full half dung.

BORAGE is a cordial herb, that has its varieties, *blue*, *red*, and *white* flowered, and one with variegated leaves; but the former is that commonly cultivated as a *pot-herb*, and its flowers for *sallads*, and *cool tankards*. To have it *young* all the year, let it be sown in spring, summer, and autumn, either in drills, or broad cast. Thin the plants to nine inches asunder. It sows itself in autumn, and likes a dry soil.

BUGLOSS possesses the like cordial virtues with *borage*, so that the one may be substituted for the other. Culture is the same.

BURNET is a warm perennial *sallad herb*, used also in *cool tankards*, propagated in spring, or autumn, either by seed, or parting its roots, and planting them a foot asunder. Keep it frequently cut down, that it may constantly furnish *young shoots* for use.

CAMOMILE is a useful *medicinal* herb, of which we have single and double flowering kinds; and of the latter, a sort with very full flowers. It is propagated by parting its roots, or by its runners, in *March*, or *April*, setting them nine or ten inches asunder. Gather the flowers in their *prime*, (as those of all plants should be) before they begin to fade; dry them thinly in the shade for a few days, and preserve them from damp in paper bags. The single sort is the strongest, though for quantity, the double is mostly cultivated: Camomile likes a poor soil.

CAPSICUM is sometimes cultivated for its young pods to pickle; being raised on a gentle *hot-bed*, or two, to bring them forward till *June*, when (rather about the middle) they may be planted in open ground, about half a yard asunder. See lists of *annuals*.

CARAWAY seeds are chiefly *medicinal*; but being used in *cakes*, a few plants may have place in the garden. Sow in spring, in a moist rich soil, and let them have six inches square to grow in.

CARDUS BENEDICTUS is simply *medicinal*, and is of good repute. Sow it in *autumn*, either in drills, or broad cast, and thin the plants to nine inches distance. It is *annual*, and must be cut down to the root for *drying*, just as it gets into flower.

CHERVIL is used in *sallads*, and is also a *pot-herb* that was formerly in much estimation for its warm nature. Sow it thick in autumn for winter and spring use. When sown in spring, or summer, it runs quickly to flower. The seed must be slightly covered, and the leaves gathered for use *young*, cutting it down like parsley, (which it resembles) it springs again.

CIVES are small bulbs, and a sort of mild perennial onion, the leaves of which are cut for *sallads*, and *culinary* purposes, at the spring, before onions come in. As the *bulbs* increase fast, some of them may be slipped from the rooted clusters, and used as onions. They are

are propagated in *autumn*, or early in the *spring*, by planting five or six of the little bulbs in a hole, an inch deep, and eight asunder. A bed of them lasts three or four years.

CLARY (the common garden) ranks as a *medicinal* herb, but it is used also in *soups*, and is very odorous. Sow it in spring, and when two or three inches high, prick the plants out fifteen or eighteen inches asunder, or thin them to this distance. It is *biennial*, and therefore must be sown every year as parsley is. There are sorts of this plant cultivated for ornament, bearing pretty flowers. See List of *biennials*.

CORIANDER is occasionally used in *soups* and *sallads*, for its peculiar high flavour; but mostly for *medicinal* purposes, which its seeds are used in. For culinary uses, sow it in *April*, and once a month, or oftener, afterwards, in drills six inches asunder, to have a succession of young plants; and make a principal sowing in *August*, or *September*, on a warm border. Cover some of it with a frame, or it will die in hard weather. If wanted early in the year, sow on a *hot-bed*, in *February* or *March*; or in this last month under *hand-glasses*.

CORN SALLAD (or *lamb's lettuce*) is a small, warm, wholesome, hardy herb, and for winter and spring use should be sown in *August* and *September*, and again in *February* and *March*, and once a month all summer, or it is to be eat quite young. The plants should grow about three inches distance: This rustic vegetable used to be much in request, though now rarely cultivated.

CRESS, there are three sorts of, plain, curled, and broad leaved; the former of which is much used as a *sallad herb*, with *mustard*, *rape*, *radish*, &c. The curled and broad leaved sorts should be thinned to half an inch asunder; but the plain is to be sown thick. The curled makes a pretty *garnish*. In the cold months, this sallad herb (as others) is sown on gentle *hot-beds*, giving plenty of air; and as the spring gets up, on warm borders, or under *hand-glasses*. The *London*

market gardeners sow it just within the glasses which cover their cauliflower plants, &c. In summer it should be sown in shady cool ground, and daily watered; or it may be sown in the most sunny situation, if hooped over, and shaded with a mat. Break the mould *fine*, and draw *level* shallow drills, and cover only a quarter of an inch. It may, however, be sown at broad cast, the ground being first raked very smooth, and the seed just covered with fine sifted mould. Let it be sown (on an average) once a week, and cut *young*. If that which is sown in open ground, at an early season, be covered with a mat, it will forward the germination. The *American cress* is much like water cress, only more bitter. It answers well as a *winter* and *early* spring sallad, being sown in *August*, at broad cast, or rather thin in drills. The plants being cut, or the outside leaves pulled off, shoot again.

DILL is a very stomachic herb, whose leaves and seed vessels are put among vegetable *pickles*, particularly *cucumbers*, to heighten their relish. The stem, leaves, and seed, are also used in *medicine*; leaves sometimes in soups and sauces. Sow it either in autumn, or early in the spring, at broad cast, or in drills, a foot asunder, thinning the plants to about eight inches. It sheds seed freely, and comes up at spring.

FENNEL (the common sort) is an hardy *perennial* herb, of the same family as *dill*, the uses of which are well known. It may be *sown* either in spring, or autumn, and the plants ought to be kept near half a yard asunder; or it may be propagated by slips from the roots of old plants. It should be constantly cut down to prevent seeding, which would cover the ground in a troublesome degree. *Sweet fennel* is an *annual*, cultivated for its seeds in *medicine*.

FINOCHIO is a sort of *dwarf fennel*, very aromatic; the bottom of the thick stalks of which, being earthed up about three weeks, when nearly full grown, five or six inches to *blanch*, are used in *soups* and *sallads*, or sliced.

sliced, and eat alone with oil, vinegar, &c. Sow it thick in *March*, in drills, about two feet asunder, and repeat the sowing every month till *Mid-July*, as it presently runs for seed. Thin the plants to seven or eight inches. It likes a dry soil. In a warm situation some may be sown in *February*; the last crop in *June* must be in a like situation, and will not be ready before winter; at the approach of which, protect it from frost with dry litter.

Hyssop is used sometimes in a *culinary*, but more in a *medicinal* way. There are white, blue, and red flowered sorts of it: but the *blue* spiked is that commonly cultivated. The parts for *culinary* purposes are the leaves, and young shoots; and the flower spikes are cut, dried, and preserved for *medical* uses, for which it is an excellent herb. As *hyssop* is a woody evergreen perennial, growing about a foot high, it may be planted for an edging of the kitchen garden. It is propagated by seed, and rooted slips, in *March*, by cuttings in *April*, or young slips in *June*, or *July*. A poor dry, or sandy soil, best suits it. The plants may be nine inches, or a foot asunder, as an *edging*, but should be near two feet from one another in a *bed*, as they soon get large.

LAVENDER (the common) is, for its pleasant aromatic scent, found in most gardens, and makes a neat perennial *edging* in large ones. It is propagated by cuttings, or young slips, in *April* and *May*, set a few inches asunder, in a shady situation, and good soil; and when rooted, planted out where they are to grow. The slips should be occasionally watered, and as a mat would cover a great many, might be shaded when the sun is hot upon them, for a fortnight or three weeks, to forward their rooting. But though raised in a good soil, lavender likes a poor and dry one best to *abide* in. Set the plants at a foot distance from one another. In a rich moist soil, they are apt to die in the winter; but in a dry hungry one, they rarely do. All plants the more

luxuriantly they grow, the more likely they are to be cut off by severe weather.

MARIGOLD has its varieties, and some sorts bear very fine double flowers; but the common single kind is best as a *pot-herb*, being most aromatic. All *single* flowers are preferable to the double of the same kind for *medicinal*, or other uses, as possessing a stronger essence. Sow marigolds in spring, and let plants of the single sort stand a foot asunder, but the large double wider. They will grow in any soil, and are in flower most part of the year. The time of gathering them for *drying* is towards *autumn*, when they are most plentiful. Take care that they are not put up in their paper bags raw, or damp, and keep them in a very dry place. This flower is a *valuable* ingredient in broths and soups, however it may have got into disuse. It sows itself abundantly, and will bear transplanting about *May*, so that there will seldom be occasion to sow.

MARJORAM is distinguished into *pot*, *winter*, and *knotted* sorts; the two former *perennial*, and the last *annual*. They are all occasionally used for *culinary* purposes, but the knotted is chiefly cultivated as a *sweet* companion of our flowers. The propagation of it is by parting the roots of the *perennial* sorts in *autumn*, or *spring*, and by sowing the *annual* kind in *March*, or *April*, on a warm border, and light dry soil. The *annual* sort should stand at six inches distance, and the *perennial* at nine or ten. The *knotted* sort, if planted in pots, and housed, may be preserved in the winter, cutting down the flower stems. This kind is sometimes used for *medicinal* purposes, and should be drawn up by the roots, for drying in the shade; or at least with but little sun.

MINT is a salutary herb, of which we have two sorts, the *spear* and the *pepper*; the former for *culinary*, and the latter for *medicinal* purposes. There is a little variety in the *spear*, as broader and narrower leaved, and

and also *variegated* sorts, white and yellow, but these are considered only as ornamental.

Mint is propagated by pieces of its roots, or rooted slips, in the spring, set an inch or two deep, and eight asunder, on beds four feet wide. Cuttings will quickly strike root in any of the summer months. It delights in a moist soil, and new plantations of it (particularly cuttings) should be well watered in a dry time. Mint is to be had young all winter, and early in spring, by means of a gentle *hot-bed*, on which it should be set pretty close; and for a succession, make a new plantation every three weeks, as the roots will perish in about that time. Or it may be conveniently planted in *pots*, and placed in any bed, and so shifted from one to another, if occasion. Do not let this, or any other herb, be *badly* dried, or preserved, as is too common a case. For *present* use, gather only the *young* leaves and shoots.

MUSTARD is much used as a sallad herb, gathered quite young, and the *white* is the garden sort, the *black* being cultivated in fields for its seeds to make *flour* of. It is managed as *cress*, which see, p. 249.

NASTURTIUM, there is a greater and less sort of, both cultivated for their unripe berries to *pickle*, their flowers for *sallads* and *garnish*, and as a garden ornament; but the large is that chiefly cultivated for culinary purposes. Being *climbers*, they should have something to lay hold of, as an arbour, or brush wood, or nailed up with shreds to a wall. They are of free growth, and flower abundantly for a long time, even till the frost comes. Sow an inch deep, in drills, in a light soil, and warm situation, in *April*, or sooner, if on a gentle heat, to forward them. It is best to sow in a few small *pots*, holding each two plants, from which they may be turned out whole (before they get too big) in *May*; though sometimes they transplant without earth, about the roots, very well. Give them plenty of air while under cover, or they will be drawn up weak.

weak. A fresh, but poor, soil, is better than a rich one, which makes them too rampant, and less fruitful. See List 8, Sect. 19, and Observation.

The *double nasturtium* is considered merely as a fine flower, but they are a beautiful *garnish*. It grows from cuttings: Plant these in pots, in *June*, and place them on a little heat, and they will soon take root. Or if the pots are plunged in a warm border, and covered *close* with a *hand-glass*, it may be sufficient. Gently water them when the mould gets quite dry. This plant is *tender*, in winter requiring a stove; yet it flourishes all summer in open ground, flowering most in a poor soil.

PARSLEY we have a *plain* and a *curled* kind of; and though the former is mostly used, yet the latter is equally proper as a *pot-herb*, and it makes a good *garnish*: It cannot be mistaken for *hemlock*, as the plain sometimes has been. There is, however, more of essence in an equal quantity of the plain, than of the curled; but it is only using rather more of the latter, which, if not suffered to seed, will stand three years. To produce the *curled* sort very fine, (as for *garnish*) the plants should be thinned to three or four inches asunder; and it may be sown either at broad cast, or in drills about nine inches asunder, as the common sort is. Parsley is sometimes sown *early* in autumn, to have it young for the winter and spring; but the usual time is *early* in spring, and one sowing may be sufficient for the year: Cut it down often to get rid of the old, and young will spring up. Cutting down parsley should never be omitted about the end of *September*, that it may be had good through the winter and spring. This herb will bear transplanting. For *Hamburgh parsley*, see *parsley* in the last section, p. 230.

PENNY-ROYAL is a *pot* and *medical* herb of the mint species. There is an upright and a trailing sort of it; but the latter is that chiefly used: This is propagated by rooted branches, of which it affords plenty,

as

as it spreads fast; and it will grow in the summer months from slips, or cuttings. Set them a foot asunder in *spring*, or *autumn*, and in a strong moist soil it will most flourish. If, however, it is suffered to mat thick, it is apt to rot. As this herb is often wanted in winter, let it have a somewhat sheltered situation. If cut for preserving in winter, the time of flowering must be observed, and it must be very carefully dried and kept, as it is apt to mould.

PURSLANE is a low growing succulent herb, of a cold and tender nature, used chiefly in summer *sallads*, but sometimes for culinary purposes. The sorts are the *green* and *golden*, but the former is preferred, and is hardiest. This plant will not succeed in the open ground till towards the end of *May*, and then it must have a warm border. In *March*, or *April*, it is sown on a gentle heat; for which purpose the lining of a hot-bed may do. Sow in *drills* four inches apart, cover a quarter of an inch, and let the soil be light and *rich*. In dry weather, water it twice or thrice a week. The end of the young shoots only are used, and when cut down it springs again. It is usual to sow it three or four times in the summer, in cooler places, as the weather gets hot.

RAPE, or *coleseed*, is sown for a *sallad* herb, to be eat while in the seed leaf, with mustard and cress; and is to be treated as they are: it is stomachic, and some persons are fond of it when boiled.

RAMPION is a *sallad* and *culinary root*, in but little request. Sow it thin in *April* and *May*, and leave the plants at four or five inches distance, for autumn and winter use: Draw it young.

ROCOMBOLE is a root much like *garlick*, producing small bulbs at head, as well as root: is chiefly *medicinal*. The cloves may be planted in autumn or spring, two inches deep, and four asunder. Treat it as *garlick*, which see. It is sometimes used as a mild substitute for

for garlick. The seeds are eatable as well as the cloves.

ROSEMARY we have the varieties, *plain*, *silver*, and *gold striped*. The plain is a useful *medicinal* herb, which should be found in every garden. It is propagated by suckers, layers, slips, or cuttings, in the *spring*, setting the two last where they have not much sun; and when rooted, *towards* autumn, or in the following spring, allot the young plants a station rather warm, and sheltered, as rosemary is apt to suffer, or die, in severe winters, especially the variegated.

RUE is a *medical* plant, propagated in spring, by seed, slips, or cuttings. It stands many years, but should be prevented seeding, and pruned down occasionally, to keep it in a neat bushy trim, of moderate height, and strong growth.

SAGE there are several sorts of, but the common red is that used chiefly for *culinary* purposes, and the green both for these, and *medicinally* for tea, &c. There is a narrow leaved green sort, called *tea sage*, or *sage of virtue*; but the broad-leaved green is reckoned by some better, not being so heating, and unpleasant to the taste. The *variegated* sorts of sage are only considered as ornaments in the flower garden, or shrubbery. Sage is propagated by slips or cuttings of the last year's shoots, in *April* or *May*, chusing those that are short and strong; or of the young shoots in the early part of summer, set in to an inch from the top, and about four inches distance, in some shady place. These, if they spindle tall in the summer, should be pinched down (in time) to about three inches, in order to form bushy heads. They will be well rooted in *August*, when they should be planted a foot asunder, in a sunny and sheltered situation, from the N. and E. that they may stand severe winters, which they will the better do, if the soil is rather poor.

SAMPHIRE is by some greatly esteemed for a *pickle*, using its leaves, which are sometimes added to *sallads*,
and

and occasionally used *medicinally*. It is perennial, and propagated by parting its roots, or by seed sown in *April*. It is somewhat tender, likes a cool situation, but yet prefers a sandy, or a gravelly soil: Let it have plenty of water. Some have found it to do best in pots.

SAVORY we have a summer and a winter kind of; the former is *annual*, and the latter *perennial*; and both are used as *medicinal* and *culinary* herbs, but the summer sort is that mostly cultivated for medicine. The *annual* is propagated from seed in *March* or *April*, sown thin and shallow, in drills, eight or nine inches asunder. The *perennial* is sometimes propagated from seed, but more usually from rooted slips, or cuttings from the top, in spring, as also from side slips. The *annual* sort should grow at six inches distance in the drills, and the *perennial* be allowed a foot. *Summer* savory, gathered for drying, is best drawn up by the roots.

SMALLAGE is a sort of wild parsley, found in moist places, and was formerly much cultivated in gardens, and used in *soups* and *sallads*, and *medicine*, as a warm herb. Sow it in spring as parsley.

SCURVY GRASS (the *Dutch*, or round leaved) is sometimes cultivated in gardens for its excellent *medicinal* properties. Sow it in *autumn*, or *spring*, but best early in the former. Though it will grow in any soil, it should have a moist one.

SORREL is an acid, perennial plant, much relished by some as a *sallad*, often used as a *pot-herb*, and sometimes as a *medicinal* one: Though found common enough in the fields, it is much improved by garden culture. The *round* leaved sort, commonly called the *Roman*, is reckoned the more grateful acid, and encreases in the ground apace. Sorrel is generally propagated by parting its roots, either in *spring* or *autumn*, and if propagated from seed, (which produces the finest plants) it should be sown in *March*. The plants of the common sorrel should be six or eight inches asunder, and

and the other a foot, or fifteen inches. Common for-
rel likes a cool moist soil, but the *Roman* a dry one.
Cut it down at the latter end of the year, and cover it
over with a little mould, first stirring the soil.

SUCCORY is a *fallad*, *pot*, and *medicinal* herb, but
not much cultivated. To be good, it must be well
blanched as *endive*, of which it is a wild sort. Sow it
in *March* for *autumn* and *winter* use.

TANSEY is a *culinary* and *medicinal* herb, of which
besides the common, there are curled leaved, and varie-
gated sorts; but the former only is proper to be used
medicinally. It is perennial, and propagated by rooted
slips, in spring or autumn, set at eighteen inches distance
in beds, four feet and a half wide; and will grow in any
soil, or situation.

TARRAGON is a perennial *pot* and *fallad* herb,
which was formerly much admired for its peculiar
high warm flavour. It is propagated sometimes from
seed, but mostly by rooted, or other slips, set in *spring*
or *autumn*, at six or eight inches distance, and may be
by cuttings in the summer months. The shoots die
down towards winter, but the roots are hardy, and
increase apace. If wanted in winter, it may be dried
as other herbs are, or forced as mint, in order to have
it green. When the stems begin to run, cut them
down, in order to produce young shoots, for the tender
tops only are to be used; and that not too freely, as it
is an herb that heats much.

THYME is a *pot-herb*, of which there are commonly
cultivated a *broad* and a *narrow* leaved sort, but the
former mostly. There is a sort called *lemon* thyme
that is admired for its flavour, and another called *silver*
thyme, which, with the *striped*, are considered rather as
merely ornamental. It is best to raise the common
sorts from *seed*, though root branches, on account of
their trailing nature, may be usually had from old plants.
Slips will grow, if set in a light rich soil, in a shady
situation, or kept moist by watering. Loosening the
earth

earth under, and drawing it up about old plants one year, will produce plenty of rooted branches the next. The plants should grow at six or eight inches distance. If propagated from *seed*, let it be sown thin in *March*, and covered lightly. Slips are best made in *April*. This herb makes a neat *edging* when planted close, but it is a great impoverisher of the ground. Keep it low.

TOMATUM, or *love apples*, we have *red*, *white*, and *yellow* fruited; and of the red and yellow, a *cherry-shaped* sort. The first, or large *red*, is that commonly cultivated, and it serves for an *ornament* in the garden, as well as of use for the *table*, in a pickle made of the green fruit, and when red in soups, &c. It is also sometimes pickled when red, (i. e. ripe.) At the end of *March*, or beginning of *April*, it must be sown in a moderate hot-bed; and being soon thinned, let the plants grow two or three inches high, and be pricked in small pots, to turn into the cold ground towards the end of *May*; or if not long and weak, keep them under cover a little longer. Give them a *sunny* situation against a wall, for regular and timely *training*, and support them by sticks. They take up much room, and in rows should be three yards asunder. If planted out upon holes of hot dung, it would help their speedy rooting, and forward them much for ripening their fruit, which in bad seasons they sometimes fail in. They require much *water* in dry weather.

WORMWOOD is a useful *medicinal* herb; and common as it is in many places, in others it is not to be met with wild. Besides the common, there is a *Roman wormwood*—both are efficacious; some preferring the one, some the other. They are commonly raised from *slips* and *cuttings*, in any of the *summer* months, or from seed sown in *spring*.

SECTION XVII.

OF FRUITS.

THERE is a variety (and of some a great one) of each kind of fruit, and the difference of tastes makes it impossible to pronounce upon their particular merits. With respect to fruit, there are *provincial* prejudices in favour of some, and of apples in particular, so that in one county, a sort shall be generally known and admired, and in another, not be heard of.

In assisting the *young gardener* in his choice of the principal fruits, only a few sorts will be named; such as have obtained almost an universal credit. It would be well if the number of some kinds (as in *peaches*) were reduced; for their multiplicity occasions a great uncertainty, and their shades of distinction are hardly discovered by the best judges. *Nurserymen's* catalogues furnish large lists.

Of the *same* sort of fruit there is often a perceptible difference, owing either jointly or separately to the stock, state of the tree, soil, situation, management, and season. Bad planting, by cramping the roots, &c. will often induce sickness, and of course a good plant made to produce small, ill-flavoured fruit, and thus it will appear to be not *itself*. So that when the *best* method is taken to procure good fruit, (or such that please us) which is by grafting, or inoculating from the *very* tree we have admired the fruit of, our expectations may, in a measure, be disappointed by a variety of circumstances.

NURSE-

NURSERYMEN, it is often said, are not to be depended upon, for if they have not the sort you want, they will send you one they have; and this may *sometimes* be the case, as they may think it of little consequence if you have one that is good. But the case is, there is a great *confusion* in the names of fruit, by accident, ignorance, carelessness, &c. New titles have been arbitrarily imposed on old fruits that have happened to vary a little; and distinctions made without difference, of which circumstance Mr. *Evelyn* complained in his day, saying, "The discriminating the several kinds of fruit, by their *characteristical* notes, from the leaf, taste, colour, and other distinguishing properties, is much wanting." But as Mr. *E.* observes, the ability for this is only attained by long and critical observation. Dr. *Hill* (in his *Eden*, folio) professes to have given great assistance in this matter. "Under the section of *fruits*, (says he) we shall give their proper names and descriptions, by which every one will know by what names to call those he sees." I doubt it; and that an intimate *acquaintance* only can do it.

Disappointment frequently originates with the *purchaser*, who having met with a fruit to his mind, inquires the name, and is told a wrong one, and that, perhaps, of a bad sort; the nurserymen then complying with his order, is blamed. A reduction of the number of sorts, to those in which there is an *evident* difference, with more care on the part of those who raise, and those who buy trees, in all respects; and particularly that of preserving the true *name* seems necessary, therefore, in the affair of fruit trees.

The *choice* of fruit trees should be somewhat governed by soil and situation; (which has been observed) for that fruit which succeeds in one, will not in another. Water fruit may be planted in light soils than in strong ones. Some sorts grow finest in a cool, others in a warm soil, and some situations are too bleak, either for early or late fruit, though the aspect, and all other circum-

circumstances, may be good. In *planting* fruit trees particularly those of the wall, much *discretion* is necessary to avoid disappointment.

As fruit trees are so readily *purchased*, few people care to *raise* them; but those who may be disposed this way, will find instructions in the sections *nursery* and *grafting*. The purchaser must attend carefully to the *planting*, for which work directions have been given in the sections of the *formation* of a garden, and that on *planting*. For the *training* and *pruning* of fruit trees, ample rules are laid down in the section *On pruning*: so that nothing need be said of their *cultivation* here, making proper *references*.

APPLES, as the most *useful* fruit, it will be proper to provide as many trees of as there may be found due room and occasion for; taking all care to procure good sorts of the two kinds; i. e. for eating *raw*, and *dressed*, and to have a proper *assortment* of the *summer*, *autumn*, and *winter* fruits.

For the first season, *jenneting*, *common codlin*, *magaret apple*, and *summer pearmain*. Second, *golden pippin*, *Holland pippen*, *golden rennet*, *white calville*, and *Kentish codlin*. Third, *nonpareil*, *golden russet*, *Wheeler's russet*, *winter pearmain*, *Kentish pippin*, *ribstone pippin*, *margille*, *Norfolk beefing*, and the *Job apple*. There are, no doubt, other apples very good, but, perhaps, these have as much merit as any. With respect to *raising*, *planting*, *pruning*, &c. see pages 30, 35, &c. 68, &c. 79, &c. 97, &c. 156, n. 60.

The *gathering* of apples, and other fruit, from standards, is often badly performed, damaging the branches and breaking the spurs off; let this business, therefore, be properly attended to, particularly in young trees of good sorts. Do not pinch, or bruise, fruit in gathering, for even the hardy apple may suffer.

As to the *keeping* of apples, those which continue long for use should be suffered to hang late, even to *November*, if the frosts will permit, for they must be

well ripened, or they will shrink. Lay them on heaps till they have *sweated* a few days, when they must be wiped dry. Let them then lay singly, or at least thinly, for about a fortnight, and be again wiped, and immediately packed in boxes and hampers, lined with double or treble sheets of paper. Place them gently in, and cover close, so as to keep *air* out as much as possible. Preserve them from *frost* through the winter. Never use hay for the purpose.

Some of the *choicest* table sorts of apples may be treated as directed for the best pears.

The *baking* apples need not be packed, but either kept singly on the floor, or shelves, or in heaps covered over, when they have sweated a few days longer than the others, and have been wiped dry; yet these, if packed, will certainly stand a better chance of keeping the longer. Remove all decaying fruit as soon as discovered, and suffer no damp or musty straw to remain in the room: Use that of wheat or rye.

APRICOT is a fruit something between a plum and a peach, partaking of a middle nature, both in growth and taste.

The *early masculine*, *Brussels*, *orange*, *Turkey*, *Breda*, and *Moor park*, or *Anson*, are the common and best wall sorts; but the *Turkey* and the *Moor-park*, though excellent fruits, are idle uncertain bearers. The *Dunmore Breda* (excellent) is ripe in *September*.

Gather apricots a little before ripe, or they will lose that smartness which recommends them. With respect to *thinning* the trees of young fruit, when too full, see page 146. Particulars as to *raising*, *planting*, &c. see pages 30, 37, 71, 90, 103, 105, 129, &c.

BLACKBERRY (sometimes called *piperidge*) is a pretty fruit, useful as a *preserve* and *garnish*; a handsome shrub, which makes a profitable, and also useful hedge, for by reason of its thorns it is almost impregnable.

Besides the common *red* fruited, there is a *stoneless* red, preferred for preserves. See list 3, sect. 19. Of *raising* this shrub, &c. see pages 76, 165.

COR-

CORNEL; i. e. *Cornelian cherry*. The fruit used to be by many *preserved* to make tarts, and a *medicine* preparation was also made of it, called *rob de cornu*. See *cherry*, list 2, sect. 19.

CHERRY: The sorts may be the *early May*, *Mar duke*, (ripe in *June*) *white*, *red*, and *black hearts*, *bleeding heart*, *bigeroon*, *Turkey*, *tradescents*, and *morella*; to which may be added, the *yellow Spanish*, and *white Swiss*, ripe in *August*.

In *gathering cherries*, take care not to pull the fruit spur off, which is a very common thing. If they are *properly ripe*, they will part easy from the tree. See pages 31, 37, 85, 90, 103, 157, 160, 163.

CHESNUT is not a garden fruit, but the manured or *Spanish* sort, in an open situation, produces good nuts about *Michaelmas*, and may be kept all winter, if covered close from the air. See page 75.

CURRENT, we have a small *red* and *white*, with larger of each, called *Dutch currants*, the *Champagne* or pale red sort, and the *black*. There are currant trees with variegated leaves, and a sort with a gooseberry leaf. See pages 31, 38, 76, 106, 159, 163.

FIG is a fruit, the sorts of which that are mostly planted without doors in *England*, are the *common large blue*, *early dwarf blue*, *early dwarf white*, and *large white*. The first kind is the hardiest; but yet do not always ripen well with us abroad. See pages 29, 30, 74, 103, 105, 151, &c.

FILBERD, we have a *white* and *red* sort of, and the latter judged most agreeable in flavour. Other nuts are the *Spanish*, *cob*, and *hazel* in variety. The first is a large nut with a thin shell, and the second is a large one with a thick shell, but both are good. There is a nut near two inches long, but it does not kernel well. See pages 37, 71, 76, 158.

GOOSEBERRY, there are many sorts of, arising from their propagation by seed, differing in their time of coming in, size, colour, &c. The large sorts of gooseberries (weighing from ten to fifteen penny

weights) have been much run upon, yet there are small ones better tasted. The names at least of the sorts are numerous, (above 200) but those that have been long commonly cultivated are, the *early black*, *small early red*, *smooth green*, *hairy green*, *common and large white*, *hairy and smooth red*, *ironmonger*, *Cham-paigne*, *yellow*, *amber*, and *tawney*. See pages 31, 38, 76, 106, 159, 163.

GRAPE. The only sorts likely to fruit well in open culture, are the *black July*, *white* and *black sweet water*, *black muscadine*, and *black cluster*. See pages 29, 31, 75, 103, 105, 147, &c.

MEDLAR, we have an apple and pear shaped sort of; but this fruit is little cultivated, and not good till rotten ripe. The sorts are, the *German*, the *Italian*, and the *English*, or *Nottingham medlar*. Gather at the beginning of *November*, lay some on straw, and cover with straw; and others (to forward their ripening) put in a box, on a two inch layer of fresh bran, moistened well with soft warm water; then strew bran between them, and cover two inches thick, which moisten also, but not so wet as before: Proceed thus, layer upon layer; and a week, ten days, or a fortnight, will do the business. See pages 37, 75.

The chief value of the *medlar* (as also of the *service*) is its late coming in for table use, when there is little other fruit to be had: Few like it.

MULBERRY, there is a *black*, a *white*, and a *red* sort of; but the former is the one generally cultivated for fruit, being as such the best. The *white* sort of mulberry is that cultivated for feeding *silk worms*. The *red* sort is the common mulberry of *Virginia*, hardy, and succeeds here.

The *mulberry tree* should have a *grass plat* under it for the fruit to fall on; for those thus picked up will be superior to what may be gathered. See pages 32, 75, 157.

NECTARINE is much like the *peach* in all respects only that it is smaller, has a smooth skin, and of firmer flesh. The *Newington*, *red Roman*, *temple*, and *murray* are good sorts, to which the curious, in a good situation, may add the *early nutmeg*, the *late green*, of *Peterborough*, and the *white Italian*.

In gathering nectarines and peaches, never pinch them to try whether they are ripe; for when so, the touch will discover it, and when thorough ripe (as they should be) they will come from the tree with great ease. See pages 29, 30, 71, 90, 103, 108, 129, &c.

NUT, see *Filberd*.

PEACH (in general) succeeds better than the nectarine, as to bearing and ripening. There is a great variety of peaches under cultivation in *England*, but on the *Continent* the number is much greater. The following may be recommended: The *early Ann*, *early Newington*, *early purple*, the red and white *Magdalen*, the two *mignons*, *nobleſſe*, *admirable*, *old*, or *late Newington* and *Catherine*.

Peaches cannot be too ripe, (see *nectarine*) so that those which drop are by many reckoned the best; and those whose flesh adheres to the stone (called *pavies*) are by some thought the more delicious. The *nobleſſe* and *admirable* part from the stone. See pages 29, 71, 90, 103, 105, 129, &c.

PEAR, there is a great variety of, classed into *summer*, *autumn*, and *winter* fruits. The *summer* sorts may be the *green chissel*, *Catharine*, *Fargonelle*, and *summer Bonchretien*. The *autumn*, *brown buerrè*, *bergamot*, *swan's egg*, and *dean pear*, or *St. Michael*. The *winter* *St. Germain*, *cresan*, *winter bonchretien*, *colman*, and *chaumontelle*. These all come in for eating regularly, the first in *July*, and the last continues on to *June*. *Baking pears*, *Parkinson's warden*, the *union*, *Uvedales St. German*, *cadillac* and *black pear* of *Worcester*, good to *Midsummer*.

Gathe

Gather pears of the *summer* sorts rather before they are ripe, as when thoroughly so they eat meally, and will not keep well above a day or two; even when gathered as they ought to be, in a week, or less, they will go at the core: They should not, however, be gathered, while they require *much* force to pull them off. *Autumn* pears must also not be full ripe at the time of gathering though they will keep longer than those of the summer. *Winter* pears, on the contrary, should hang as long on the trees as they may, so as to escape *frost*, which would make them flat in flavour, and not keep well. Generally they may hang to the middle of *October* on full *standards*, a week longer on *dwarfs*, and to the end of the month on *walls*; but yet not after they are ripe.

The art of gathering, is to give them a *lift*, so as to press away the stalk, and if ripe they *readily* part from the tree. Those that will not come off easy, should hang a little longer; for when they come hardily off, they will not be so fit to store, and the violence done at the footstalk may injure the *bud* there formed for the next year's fruit.

Let the pears be quite *dry* when pulled, and in handling avoid *pinching* the fruit, or in any way (in the least) bruising it, as those which are hurt not only decay themselves, but presently spread infection to those near them: When *suspected* to be bruised, let them be carefully kept from others, and used first. Gather in shallow baskets, and lay them in gently.

House pears in a dry airy room, at first thinly for a few days, and then put them in heaps to sweat; in order to which, a blanket thrown over them will help. The *fermentation* must be watched, and when it seems to have passed the height of sweating, wipe the fruit quite dry with fine flannel, or clean soft linen, and store them.

The *storing* is thus: Those to be used first, lay by singly on shelves, or on the floor, in a dry southern room,

room, on clean dry moss, or sweet dry straw, so as not to touch one another. Some, or all the rest, may be stored as directed for *apples*; for they will thus keep very well, having first laid a fortnight singly, and then nicely culled. But the most superior way is, to pack in large earthen, or China *jars*, with very dry long moss at the bottom, sides, and also between them, if it might be. Press a coat of moss on the top, and then stop the mouth close with cork, or otherwise, which should be *roasted* over, with about a twentieth part of *bees-wax* in it. As the object is effectually to keep out air, (the cause of putrefaction) the jars, if earthen, may be set on dry sand, which put also between, round, and over them, to a foot thick on the top. In all close storing, observe, there should be no doubt of the soundness of the fruit. Guard in time from *frost* those that lie open. Jars of fruit must be soon used after unsealing. See pages 31, 37, 44, 71, 74, 82, 89, 90, 95, &c. 103, 153, 160.

PLUM, of the many sorts the following are good: *Green and blue gage, Fotheringham, white and blue perdrigon, drop d'or, la roche Corbon, la royal, and St. Catharine.* The *imperial, or red magnum bonum, and white magnum bonum,* are chiefly used in tarts, and for sweetmeats, as is the *Wentworth.* The *early white primordian* (not a choice fruit) is valuable for its coming in the beginning of *July*; and the *imperatrice* for not coming in till *October.* *Damson and bullace plum,* black and white, very late in the season, for tarts, and a fine acid preserve. See pages 31, 37, 71, 74, 82, 90, 103, 158, and 160.

QUINCE, we have the *common apple, and pear shaped, and Portugal pear shaped.* This fruit cannot be eat raw, but for *marmelade, and baked in pies, &c.* the housewife finds it useful. The *Portugal* is mostly esteemed. Quinces may hang till *November.* The ripe ones only are of value, which after sweating a few days,

days, must be laid singly (at some distance from one another) on a shelf. See pages 37, 74, 103.

RASPBERRY, the kinds are *red* and *white*, and of each a *twice* bearing sort, i. e. producing fruit in summer and autumn. Of the *red* there is a prickly wooded sort, and a smooth one, called the *cane*, and sometimes the *reed* raspberry; and the large *Antwerp*, of a yellow white, sometimes called the *Middleton* Rasp.

Gather this fruit carefully, and not long before wanted; lay no great quantity together. Raspberries presently lose their flavour, and tend to decay. See pages 38, 55, 77, 106, 164.

SERVICE, (sweet) or *forb apple*, is rarely cultivated for fruit, as it requires a warmer climate than *England* to ripen it. In fact, it never ripens on the tree. It is gathered late in autumn, in a very austere state, and laid by on straw to decay, when in about a month it becomes agreeable to eat. The trees are hardy, and the curious often plant them, merely for the singularity of their leaves and fruit. This tree is sometimes trained, on a wall, or espalier, as pears. There is a variety, as the *apple*, the *pear*, shaped, &c. See lists of trees, 1, 2, Sect. 19.

STRAWBERRY: Of this fine flavoured fruit, beautiful and fragrant, we have the following sorts: *Red*, *white*, and *green wood*; *red* and *white Alpine*; *scarlet*, *Carolina*; *hautboy*; *red* and *green pine-apple*; *Chili*, of sorts; with some seminal varieties, as several of the *hautboy*, and one in particular of the *Carolina*, called the *pink-fleshed* strawberry. There is also a strawberry with *one leaf*, a variety of the wood and prolific.

Gather strawberries regularly as they ripen, with a bit of their stalk, and never lay many together to press upon one another. The frether they are, the finer eating: for this fruit, as the *raspberry*, is quite naught when stale. See pages 38, 51, 55, 77, 111, 165.

WALNUT, there are several sorts of, as *early* and *late*, *small* and *large*, *thick* and *thin shelled*, &c. Two

only need be named, the *early oval thin shelled*, and the *common round*, or *royal walnut*. All the others seem to be only seminal variations from the last, which is justly reckoned the best fruit. Procure trees from seven to ten years old, as they seldom bear till about twenty years of age. See pages 76, 103.

SECTION XVIII.

OF FLOWERS.

Flowers, the sole luxury which Nature knew,
In *Eden's* pure and guiltless garden grew;
Gay without toil, and lovely without art,
They sprung to cheer the sense, and glad the heart.

BARBAULD.

FLOWERS, as to their cultivation, are classed into *annuals*, *biennials*, and *perennials*. *Annuals* are those that are sown and flower, and generally die within a year. *Biennials* are those that are sown one year, and flower and generally die the next; though some of these, by sowing early, and forwarding by a little heat, will blow the same year. *Perennials* are those that do not flower the year they are sown, but the next, and continue to live years afterwards, some fewer, some more: Of this class there is a great variety, (perhaps fifty to one of the last) mostly fibrous rooted, some fleshy, some bulbous, and some tuberous, &c. Most of the *perennials* are annual in their stalks, which die down to

to the ground in winter, and fresh shoots rise in the spring. But, strictly speaking, all of each class are not annual, biennial, and perennial; for some of the *annuals* come (though more weakly) a second, or a third year, as *Chinese holyhock*, and *Indian pink*, and a few others, (which die abroad) would live through the winter if housed. Of the *biennials*, the same may be said of the *stock July-flower*, *sweet William*, and *wall-flower*; only the former of these plants does not always live through the winter. All are to be sown, or propagated, as they are classed, in order to have a certain and fine blow. Of the *perennials*, some do not flower well above three or four years, as the *holyhock*, &c. for which a sowing should of course take place the year before they are wanted: A few may also go off the second year, having perfected only one blow. See pages 41, 42, 55, 56, 59, 64, 65, 69, 110.

What sweets are these which gratefully diffuse
Their fragrance round?—

—————'Tis the *flowers*,
The incense of the garden's breath, that sheds
This balmy sweetness.——

—————To the smell
How grateful, nor less pleasing to the eye
The bloom of opening flowers.—Kind Nature here
In nice proportion all her favours deals;
Those gales around the blissful garden pours,
Neither too strong the organs to oppress,
Nor yet so faint the senses to elude.

See in what various tints the flowery tribes
Their several beauties shew, and court the eye
With new delight, distinguish'd each from each
By different hues—how wise the bounteous hand
Of that indulgent power! tho' perfect all
His works, who yet on all the charms bestows
Of novelty to shew 'em still more fair.

NEWCOMB.

I. OF ANNUALS.

Annual flowers are usually divided into three classes, i. e. *tender*, *less tender*, and *hardy*.

In the list, section 19th, the *tender* annuals are marked 1, the *less tender* 2, and the unmarked are *hardy*.

To this list of flowers might be added others, and some possibly that are pretty; but many of annuals introduced for variety's sake in large gardens, plantations, &c. are weed-like, dull, and rambling; and perhaps a few among those here mentioned may not be sufficiently *ornamental* (as, for instance, the *whites*, where there are other colours of the same flower) to give general satisfaction; for a *gay appearance* is certainly the first object in the cultivation of flowers to adorn our walks. There are *rare* plants, and others admirable in their structure and properties, which make no shew; but these are rather subjects for the curious *botanist*, and he will deservedly think them worthy of a place in *his* garden.

Some *flowers* are both beautiful and fragrant; but many have only one of these properties to recommend them. Some are cultivated chiefly for the beauty or elegance of their *leaf*, as the *tricolor*, *ice plant*, *palma christi*, and the *curled mallow*; and some that bear pretty and sweet flowers, are meanly furnished with leaves, as the *yellow sultan*. Others obtain a place in the garden, neither for fragrance, or flower, or leaf; but merely for the singularity of the *fruit*, or seed vessel, as the *egg plant*, *snails*, *caterpillars*, *hedge hogs*, *horns*, and others.

In the given list, some of the *tender* annuals may occasionally be considered as *less tender*; as *Amaranthus coxcomb*, and *tricolor*, *balsams*, *double*, as well as *single*, and *stramonium*; only they will not be so forward and fine. Some of those also among the *less tender* may be

town

sown as *hardy*, for a late blow, as *China-aster*, *Indian pink*, *love lies bleeding*, *French* and *African marigold*, *princes feather*, *ten week stocks*, and *sweet sultan*. Some among the *hardy* annuals may advantageously be treated as the *less tender*, to ensure their germination, or to bring them forward, as *belvidere*, *Indian corn*, (the large sort of which must be forwarded upon heat) *mignonette*, *mal-lerry blight*, *nasturtium*, and *persicaria*.

The CULTURE of each Class follows.

I. OF ANNUALS.

ABOUT *Mid-March* is a general good time to sow the *TENDER* (and in short all) sorts, though the curious and skilful being well furnished with proper frames, &c. may begin a month sooner; the end of *March*, or beginning of *April*, is, however, not too late, and will (perhaps) better suit a *young* gardener than if he sowed earlier. In order to succeed in this business, there should be provided fine dry and rich earth, good stable dung, frames and lights, or roomy hand-glasses, and mats, to cover.

A moderately strong *hot-bed*, for a one light, may be prepared, and the violent heat being certainly over, the seeds either sown thinly in *drills*, two or three inches asunder, on five or six inches of mould, or less on a weak bed. May sow also in *pots*, plunged to the rims. Cover the seeds from a quarter to half an inch, or more, according to their size. Some of them will appear in a few days, and others will lie a fortnight, or more, according to the circumstances of their particular *nature*, *age*, and the *heat*, or *moisture*, they meet with in the bed.

Thin the plants a little in time, and soon after to an inch, and then again to two, asunder. By no means let them be crowded, which would draw them up weak,

and occasion a crooked growth ; whereas a robust and erect stature is the beauty of any plant.

Water, just warm, must be gently given them, (not to beat them down) as they may appear to need it, and *air* (particularly in a full sun) as much as they can be thought to bear, a little at first, and by degrees more, for this is essential to their health and strength.

The seeds may also be sown in *pots*, and plunged at the back part of a *cucumber* or *melon* bed. A bed may be got ready to prick them into, or into pots placed in the like manner ; and where only a few are cultivated, this method is advisable, (to save trouble) not beginning too early.

Provide another bed by one month from the sowing, to set the plants out in ; and having six inches depth of mould, place them five or six inches asunder, allotting those to the warmest part of the bed which were longest coming up, and which are of course the weakest, as *globes*, &c. or they may be put out in small pots of five inches diameter : Place the tallest behind. Let the mould be warmed through before planting. There had better be too little, than too much heat ; but if the bed gets over cool, line it, or cover round with straw, as directed in the management of hot-beds, page 174.

If not sown till the beginning of *April*, this second bed may possibly go through the business, with proper management to keep up its heat, and covering well on nights ; but a third bed is commonly necessary, in order to succeed well, and bring the plants on forward and fine. In this bed, it being covered over with four or five inches of mould, the plants should be in small pots, one in each, and plunged an inch deep, close to one another. As the bed gets cooler, the pots are to be earthed higher, till up to the rims in mould ; but if planted without pots, the distance should be eight or nine inches asunder.

More *water* and *air* is necessary as the plants increase in size ; and every time they are shifted, let it be carefully, with some earth about their roots ; though
a warm

a warm bed will soon make them strike, if without mould. Let them be *shaded* from sun a few days ; i. e. till rooted in their new habitation. As these tender annuals do not rightly bear the full open air till *Midsummer*, give them resolutely as much of it as possible in the frames, (by degrees) even to taking off the glasses in the middle part of fine mild days. Keep up a heat in the third bed as long as can be, that the plants may continue in a growing state, and not yet stunted by cold at bottom. To this end, a *fourth* bed, for some of the sorts, as *globes, coccinib, &c.* would be a great advantage as to size, especially if the weather is unkind.

It is hardly necessary to hint that the *beds* must be larger, and *frames* deeper, every time the plants are shifted. As the first frame was a *one* light, let the second be a *two* light, and the third a *three* light, which may be raised upon bricks, or boarded round the bottom, as occasion may require. From the small *pots*, let them be transplanted into bigger in time, or (as soon as they can safely be) into warm borders, where, if covered with hand-glasses, set on bricks for a while, it would secure them from unkind weather, till got a little hardened. In this changeable climate of *England*, there is hardly any knowing when tender plants may be exposed safely ; yet too much housing and covering is to be avoided as much as possible. Many flowers will need *support*. See page 55. For the method of *shifting* plants from pots, as into bigger, or to the open ground, see page 184.

Some of the tender flowers in pots may be plunged to the rims in the ground, to keep their roots cool, and for the sake of being conveniently covered ; in which case, it is proper to put a bit of tile below the pot to keep out worms.

Good *seed* from tender annuals will not be well had, but from *February* sown plants. Skilful gardeners, sowing early, and having plenty of dung and *drawing*

frames, produce surprising plants of the tender annual class; so that the *globe amaranthus* has been raised to three, and the giant *coxcomb*, and *tricolor*, from three to five or six feet high. Flowers designed to gather seed from, should begin to have some protection of glass about *Mid-August*, at least on nights, till they are fully ripened in *September*.

Scoop trowels, of two or three sizes, will be found very useful in the shifting of flowers in general, but particularly of the hot-bed sort; and as they should be clean from dirt when used, so also should they be free from *rust*, by which they will work much pleasanter, and more successfully: In short, *all* garden tools were better kept bright, as well for use as neatness. Before a trowel is used, in the removal of a plant, it is a safe way to cut strait down round the root, and to the bottom, with a large, clean, and not very blunt knife; so will the trowel take all up whole, and the fibres will not be lacerated, or barked: But attempt not to take up more earth in a ball than is likely to hang together, lest all drop by its weight. Transplant (if possible) always in moist, or cloudy weather.

A *small watering pot*, (i. e. from two to three quarts) with a *finely* pierced rose, is also necessary, to give refreshment without bending down the plants, or hardening the surface of the earth. The *form* of many a good flower is spoiled in its infancy by *rough* watering, and particularly *capsicums*; to avoid which evil, whatever pot is used, let it be only half full.

The *potting* of plants is often carelessly, but ought to be most carefully performed, that as little check as possible may be felt by the roots. Fill the pot one third, half, or more, full, (as the case may require) and then make a hole in the middle, adapted in form to receive the plant, with its *ball* of earth; and do it right at first, so as not to be too high, or too low, for once put in, it will not be safe to take it out again, lest the mould drop from the roots. Do not press the ball of earth,

earth, (as some do) but only just fasten the loose mould that is put round it. If the soil is light, press that a little which is first put in at the bottom. If a plant that is to be potted be *without* mould about its roots, raise a *hillock* (at a proper height) in the middle of the pot, to lay the roots on and round: It must always be avoided planting in the pots *too* deep, because so much of the pot is lost as is above, except the sort is apt to strike root above, as *balsams*. In all *transplantations*, it is proper to shorten some of the roots, and the most straggling are to be chosen for the purpose; so that when it is done with a *ball* of earth, some of the external fibres must be cut off, if it was not done by taking up, which it generally is when the plants are any thing large.

Annuals in *pots* will require *water* every day, in very hot weather, and in moderately so, every other; but those in the open ground will do twice as long (or more) without *water* being given them. Some sorts will need more *water* than others, as *egg plants* and *balsams*, than *coxcombs* and *tricolors*. This matter, and a variety of others, will be learned by *observation*, without a talent for which, no one can possibly become a *good gardener*. The most exact directions will not take in every case, and rules will be of little avail, where the mind is not in diligent exercise.

In general, *potted plants* require *water* according to the weather, their situation as to the sun, the size of the pots, the fulness of the roots, the quantity of leaves, and the particular nature of their substance, as succulent or not: The smaller pots must have it the more frequently. The *earth* also in which plants grow makes a great difference, as some sorts of soil retain moisture much longer than others. It may be a *question* whether pots of *annual* flowers standing in *pans*, should have *water* constantly kept in them, or only watered (in due time) on the top, till it runs through: Both practices are followed by good gardeners; but the latter I think

think best; as keeping the young fibres at the bottom always sodden can hardly be right: With respect to *perennials*, (except of an *aquatic* nature) it must be wrong. Let pots of flowers in the summer be placed pretty much in the *shade* and *shelter*; but not by any means be under trees, or a roof. A situation where they have only the *morning sun* till eleven or twelve o'clock is the best; and some persons are so curious in this respect as to have *awnings* for the purpose, and temporary *reed fences* to keep off the wind, to which flowers (particularly of the tender kind) should not be wholly exposed. *Annuals*, or even a few *perennials*, may be put in covered places, when nearly in full blow, for the sake of their ornament; but the latter should not be continued longer than while the prime show lasts, for it will make them weak and crooked.

It is *advisable* not to *pot* more hardy plants than necessary, as they occasion much trouble, if properly managed; and after all, will not be so fine as those growing in the open ground. Some things are too tender for open culture, and by potting they are conveniently protected by *frames*, or by *housing*, and sometimes simply plunging them in the ground, close against a warm wall, in winter, where a little protection may be easily given them. Others it may be desirable to pot, for the sake of moving them into particular places, when in *blow*, and to have some ready to put into the ground, where others are gone off, so as to keep certain favourite borders and walks always well furnished; but do not have *too* much to do in this way.

A *second* sowing of *tender* annuals should take place three or four weeks after the first, according as that was made, late or early; for their beauties are certainly desirable, as long as the season will permit us to behold them, and they are the *florist's* chief dependence in the *autumn*, when, if he is emulous to do well, he may make a noble creditable show. See *list* 7, in next section, with the observations.

The

* * * * *

The LESS-TENDER annuals should have a slight bed (about two feet thick) made for them at *Mid-March*, or a little after, being sown and managed as directed for the tender sorts. When they are one or two inches high, (according to their nature) they must be taken up with a scoop trowel, so as to keep a ball of earth about their roots, and either transplanted on another bed, about one and a half foot thick of dung, or into the cold ground; the small kinds at four or five, and the larger at six or eight inches asunder, in a good well broke soil. Let them be immediately watered and kept moist, and shaded from sun till well settled. Here they may grow till their leaves begin to meet, when they should be cut between their roots with a knife, and lifted up neatly with a scoop trowel, to be potted or planted where they are to flower: If this business is done well, they will receive but little check in their transplantation. *Spindle* rooted plants (as *stocks*) should be moved where they are to blow, as young as may be; but *fibrous* rooted ones may be shifted much older.

Plants will *flag* a little even when removed with a large ball of earth; because *some* of the fibres of the roots are either broke or cut, and a plant is chiefly fed by the youngest and most *extreme* parts of the root. If possible, let all *summer* transplanted flowers be *shaded* from sun, by garden pots, (raised a little) or otherwise, till they have struck fresh roots, which they will soon do; but uncover on nights. This will occasion some trouble; yet the advantage attending it makes it very advisable, if not absolutely necessary, and especially when the plants are moved with none, or very little mould about their roots.

A *hot-bed* for these, as it is moderate, may be covered with hoops and mats, and do very well, or rather better than frames and glass; for it often happens, that annuals
are

are kept *too* close, by which they become weak, and get stunted when planted out in the free air, made, by over-nursing as it were, unnatural to them. Towards the end of *April*, almost any of them will come up under *hand-glasses*, or even without, on a warm border, in a light and rich soil; but they will blow late, and be not near so strong. The *Chinese hollyhock*, though it will certainly come up well at this late sowing, will be hardly able to make a show before winter. Those flowers of this class, however, that have been mentioned to be occasionally considered as hardy, may be thus treated for a *second* blow.

Other modes of cultivation are, that a few of the less tender sorts may be sown in pots, and placed (not plunged) in any hot bed that is in work for other things; but they must not be kept close, or hot, which would draw them up weak: This plan may do for them a little while, and a slight heat may be got ready to prick them out upon, when air may be given them freely.

Again, both this class of annuals, and the former, if not very early sown, do exceeding well, (or rather best) when on *hot beds*, under *hand glasses*, or *paper lights*; particularly *balsams*.

What was said of *tender* annuals apply here, as to *air*, *water*, and *cover*, but more freedom in the present case is to be taken. If any are under *mats*, the cover must be removed on days, except the weather be bad; or it may be only turned back, and half off, to let the sun and light in from the *south*. Never let either the *seeds* or *plants* of annuals really want *water* when the weather is dry. See page 55. See *List 8* in the next Section, with the observations.

* * * * *

The *HARDY* annuals have some little difference in their temperature. Though all may be sown from the middle

middle to the end of *March*, as the best average season, some may generally, with safety, be sown at *Mid-February*, as *candy tufts*, *cornbottles*, *larkspurs*, *hawkweed*, *lavatera*, *lobel's catchfly*, *lupines*, *dwarf lychnis*, *nigella*, *sweet peas*, *poppies*, *mulberry blight*, *oriental mallow*, *persicaria*, *sun-flower*, *annual snap dragon*, *Venus's looking-glass*, and *navel wort*, *virginian*, or *annual stock*, and *winged peas*, with some others.

But nature seems evidently to direct an *autumn* sowing, for many sorts which are then shed (some always, and others often) come up at spring, and these make the finest *blow*, and produce the best *seed* for propagation. A number, (all the above sorts) therefore, might be scattered on the surface of the ground at random, not immediately as soon as ripe, but kept a *little* while to harden: This however is not a common practice, as gardeners like to have their borders at liberty to spring a-fresh before they sow their annuals.

For the *spring* sowing, (about *Mid-March*) the ground being deep dug, and well broke, make hollows (by drawing the mould aside) of from six to twelve inches diameter, or more, according to the size of the garden, as large ones should have the biggest patches. Sow thin, and cover according to the size of the seed, from a quarter to an inch deep. Take out mould enough to leave the patches somewhat hollow, which will serve to show where they are sown, and to receive the rain, or occasional watering. It may be proper also to put a bit of stick in the center of each, as a mark, that the seed may not be disturbed. If the plants come up crowding, be sure to thin them soon, and leave only a number suitable to their usual size of growth; as one of the *belviders*, *cornbottle*, *persicaria*, and *sun-flower*; two of the *lavatera*, *oriental mallow*, *mulberry blight*, &c. three *larkspurs*; and four of less plants. Annuals are very often sown too thick, and suffered to stand too close for flowering, and that altogether not by neglect, but choice; yet a few short strong plants with fine

fine full flowers, are surely better than tall dangling weak ones.

A *second*, or even a *third*, sowing of hardy annuals may be made, at two or three weeks between, to continue the blow, especially of those that come early and are soon off: *Mid-May* is not too late. The *larkspur*, for instance, will make a long show with us, by *autumn*, and *early* and *late spring* plants; in short of every flower that blows in *summer*, there may be three sowings, and two of those that come early in *autumn* in order to a *full* succession.

Hardy annuals do not in general *transplant* well, should be sown where they are to remain, and they must have a good soil in order to success. Take care to sow the *tallest* sorts *behind*, and the *lowest* in *front*, and to form the patches at a sufficient distance from one another, that the ground may be stirred and raked between them. A garden may be *too* full of flowers, which is certainly is, if the earth is not seen about them; for when that is clean and fresh, all things growing in it appear more lively: It is, as it were, the back ground of a picture. A few hardy annuals may be sown in pots, setting them where they have only the morning sun, and when in flower, they will serve to put into any particular place for ornament, or be turned out into the open ground, where something may be wanted.

* * * * *

2. OF BIENNIALS.

There are but a few of these, and the principal sorts will be found in the *list* of them, *next section*, where observations will be made on particular plants.

These are to be *sown* in drills, or in beds, at broad cast, the latter end of *March*, or beginning of *April*, where they have only the morning sun, and the ground (should

ould be cool, or kept so by occasional watering: The beginning of *May*, however, is not too late. Thin the young plants on the seed beds a little, soon after they appear, to about an inch, and again to three or four inches asunder, and keep them well weeded. They may either thus remain till *autumn*, to be planted out where they are to blow; or if they grow too strong and crowding, let every other be drawn in *summer*, choosing a moist time, if possible) and planted out wider into nursery beds for use in *autumn*, or the following spring: The latter season will do for final planting, though the former is best, as the roots get established in the ground; when if moved in the spring they meet with a check. It is best, if possible, to transplant with earth about the roots; but shorten all trailing fibres, and cut off dead and rambling leaves. In severe winters, those moved in *autumn* (if not very early) are sometimes killed, and therefore a few may be reserved to *spring*, in case of such an accident; when being moved with good balls of earth, they will not be much checked. If planted late (as *November*) let them have fine well broke earth about the roots, and lay moss, old bark, or small stones round them for protection from frost. Some of the *Perennials* might form another class, and be called *Biennial-Perennial*, &c. from their uncertain continuance.

* * * * *

3. OF PERENNIALS.

This class (as has been observed) is very numerous, and the plants are propagated, many of them by their roots, according to their nature, as fibrous, bulbous, &c. some by layers, suckers, offsets, slips, cuttings, and a few by seed only. All sorts (bearing seed) are occasionally propagated this way, for new varieties, or to produce finer plants, as those from seed generally prove, with respect to strength, symmetry, and flowers. It happens,

happens, however, when propagated from *seed*, though sometimes a better, more frequently a less beautiful flower is produced of many sorts; and this is the reason why the other modes of propagation are so much adopted, by *offsets*, &c. as thus they come identically the same with the mother plant. Another obstacle against some sorts being sown is, that they are several years before they come to bear, as all bulbous, and tuberous rooted flowers.

The *Dutch* have made themselves famous by their patience and perseverance in raising *bulbs* and *tubers*, and sow every year some of each kind, which pays them well, when they meet with an eminently good flower. A new sort of *anemone*, *auricula*, *carnation*, *ranunculus*, and even a *polyanthus*, will frequently fetch a guinea and a *tulip*, or a *hyacinth*, sometimes ten.

To raise bulbous and tuberous rooted flowers, they should be sown in boxes (suppose three feet long, two wide, and six inches deep) of light rich earth, about the middle of *August*, or *September*, and setting them in a sunny sheltered place not under cover. Sow *anemones* and *ranunculuses* a quarter of an inch deep; *irises*, *ebicums*, and *cyclamens*, half an inch; and *tulips*, *fritillaries*, and *hyacinths*, near an inch deep, giving water in a dry time, so as to keep the mould somewhat moist but not wet. A little hay may be kept over the seed till the plants appear, which perhaps will be spring with some. Sowings may take place also in *March* or *April*, removing the boxes in *May*, to where they may have only the morning sun. Thin them a little if they come up thick, and when the stalks die, put on half an inch of fine mould; and after the decay of the leaf next summer, they must be planted out in nursery beds, (latter end of *August*) two, or three inches asunder, (according to their nature) and some will blow the following year, as the *anemone* and *ranunculus*, &c. though the *hyacinth* will be four, or five, and the *tulip* seven or eight first. These must be removed from the

the first nursery bed to another, (as soon as their tops are decayed) and planted at six inches distance; and after treated as blowing plants. Keep them very clear of *weeds*, particularly the seedlings; which protect from severe weather from frost, or heavy rain, by mats and hoops. A reed hurdle, or something else, put up at the *N. E.* end, to break off the wind *when* it is harsh, will be proper.

Fibrous rooted, &c. *perennials*, if propagated from seed, are to be treated as *biennials*; but they are mostly increased (as observed) other ways, with less trouble, and chiefly by parting the roots in *autumn* and *spring*, or by rooted slips or offsets, shortening their straggling fibres. Many of them have creeping roots, and increase so fast, that it is necessary to take them up every three or four years; and a removal of this sort is proper for most *perennials*, in order to greater neatness, and a superior cultivation; for though large tufts look handsome, they may be *too* bulky, and some kinds are apt to rot (as *bachelor's buttons*) when thick, the stalks and flowers come weak, and the leaves, toward the bottom, turn yellow.

In the *next section*, is a list of the most common, ornamental, or curious *perennial* flowers, (easy of cultivation) having *fibrous* and *fleshy* roots, of which not all the sorts are named, but those only which seemed most worthy for selection.

The general culture of *bulbous* and *tuberous* roots is, to take them up *annually*, soon after they have flowered; when their leaves and stalks turn yellow and decay, when the root is at *rest*, and its fibres die. When first taken up, lay them covered in dry ground for a few days, and then clean and harden them in the sun, (if not exceeding hot) when they must be stored in a *dry* place, till wanted: damp is apt to rot them. Never put many together, or into earthen vessels, for keeping them.

It

It is not *absolutely* necessary to take bulbs and tubers up every year, as every second or third may do; but it is the common practice, because it gives an opportunity to remove the *offsets* for propagation, and the mother bulbs are thus strengthened, as also from the renewed soil they meet with by a fresh plantation. It is not uncommon for bulbous roots to be suffered to stand *many* years without taking up; but then they cramp and starve one another, and are apt to go off from their original beauty.

Bulbs and *tubers* may be either replanted immediately on being taken up, or kept out of ground during the natural periods of rest; or for some sorts even longer, as *Anemony* and *Ranunculus*, for several months. *Autumn* flowering bulbs are to be taken up in *May*, if the leaves are decayed.

Spring flowering bulbs should be replanted in *September* or *October*; those of the *summer* in *October*, or *November*; and those of *autumn* in *July* or *August*. A little before, or after, is not very material; only when they are put in too soon, the *Spring* ones come so forward as to be liable to be damaged in severe winter and springs; and when kept out of the ground too long, the bulbs spend themselves first in making roots. *Tubercal* bulbs (as lilies) should not be kept out of the ground above a month or six weeks. Those that flower in *summer*, may be put in the ground at different times, as early and late in *autumn*, and early in the new year, (not later than *February*) to obtain a succession of blow. If any are put in at the end of *February* or beginning of *March*, they should remain two years for increase. This is a common practice with the *anemone* and *ranunculus*; but when planted in winter the soil should be a *dry* one, or made so, by digging in a good quantity of fine sea-coal ashes, and coarse, or dry sand; else they are apt to rot, if much wet falls, before they have started fibres, especially when followed by

sharp frost. They may be protected from wet by mats, and from frost by peas haulm, or wheat straw.

Offsets of bulbs, and weak tubers, must be planted a month before the full-sized roots; and as they are not expected to flower the first year, should be disposed of in *nursery* beds, (rather close) where they may grow a year, or two, according to their strength, as some will be this time, or longer, before they flower. Those taken from *scaly* bulbs, will not endure to be out of ground, and must therefore be planted almost immediately. *Bulbs* taken up *out of season*, i. e. when they have remained so long in the ground as to have struck out fresh roots, should be removed with balls of earth, for though they may live without this care, they will be exceeding weak; it is therefore necessary exactly to observe the *proper* season for removal.

The soil that best suits bulbous and tuberous roots in general, is a sandy loam; but most of the sorts are not very nice. The ground for them should however be well dug, even two spades deep, that their fibres may shoot freely, and wet be completely drained from them, when much of it falls. This work should be done a week before planting, that the ground may settle. In a light soil, roots of the *ranunculus* have been found to strike a yard deep, which may admonish, that in a clay bottom, it is proper to lay a body of stones there, (suppose at eighteen inches) that too much moisture may not be detained.

The *depth* at which *bulbs* should be planted, must be according to their size, three or four inches deep, from their top. *Tubers* also according to their size; *anemones* and *ranunculuses* at two, or two and a half inches, &c. Some bulbs will come up even when a foot below the ground, as *crown imperials*, and *crocuses*, at six inches, or more; some persons, therefore, plant them deeper than the above rule, in order to be able to stir the surface of the ground without damaging them, but it is not advisable.

The

The proper *disposition* of bulbous and tuberous roots is either in *beds* (a trifle rounded) of from three to four feet and a half wide, for the *curious* sorts; or in *patches* to form clusters of three, four, or five, agreeable to the room they require. There should be only one in a place (generally) of the white, or orange lily, crown imperial, and such like large bulbs.

In *beds*, the fancy sorts of bulbs, and tubers, may be set in rows, eight or nine inches asunder, and from five to seven inches in the rows, according to their size. The distance of four inches apart is, however, by some florists, thought sufficient for *anemones* and *ranunculuses*; but certainly more were better, where a strong blow is a first object. *Hyacinths* should be planted at seven, or eight, though they are more commonly set at six inches. *Tulips* should be at eight, or nine, though six is often all that is allowed them.

When *planted*, if rain does not come in about four days, beds of bulbs and tubers should be watered, to set them growing, that they may not rot.

Though bulbs may be planted by a *dibble*, (taking care that the mould does not lay hollow about the roots) a better way is, to draw *drills*, and place them in, giving them a gentle pressure into the ground, and covering neatly up. A little free *sand* may be strewn along the bottom of the drills, under *hyacinths*, *anemones*, and *ranunculuses*, if the soil is not a dry and light one. The *best way* of planting bulbs is, however, to draw the mould off the bed to a *sufficient* depth; then lay the surface perfectly level; give a watering; and when the top is a little dry, mark it out into proper sized squares; then place a bulb in the middle of each and carefully cover up, so as not to throw them on their sides: Give the whole a little pressure with the back of a spade.

Those bulbs and tubers in *beds*, may conveniently be *protected*, when in *flower*, from rain and sun, by a *awning*, which will continue them in perfection

blow

blow much longer than if always exposed. When these flowers, in beds, first break ground, if the weather is severe, they may then have an *awning* of mats, or cloth, occasionally over them; or a little *peas haulm*, or wheat *straw*, laid thinly on, just to protect them in their tender state a little; this regards particularly *nights*, for on *days* a cover should not remain on in tolerable weather. But *before* the shoots appear above ground, valuable beds of these flowers should be sheltered from having much wet, (even all through winter) as moisture gives *frost* so great power. If a body of *snow* lies on, it should not be suffered to melt there when it thaws.

Spring flowering bulbs may be brought forward by planting them in *pots*, or in *water-glasses*, and setting them in warm rooms, or hot-beds; and thus, even in *winter*, we may have ornaments and sweets that court our admiration. The great variety of *hyacinths* and *anemones*, furnish us amply in this way; but *earlier* bulbs may also be thus forwarded. *Pots*, placed in a warm *kitchen* window, may be brought forward to make their blow in the parlour; or if placed in any window, open to the *south*, it will forward them. These should be potted in *October*, and have a light dry soil, occasionally giving water. Bulbs may be put in *glasses* at this time, and once a month after, to *February* for a succession. Let the bulb just touch the water, which should be soft, and replenished so often as to keep it up to the bottom of the bulbs. Let it be completely changed about once a week; and if a bit of *nitre*, the size of a pea, be put in each time, it will strengthen the blow.

Though bulbous flowers are propagated plentifully by *root offsets*, yet some are increased from little bulbs formed on the sides or tops of the *stalks*; as the *moly*, *tribe*, and the bulbiferous *lily*. These should be taken off in *August*, dried a little in the sun, and then planted in nursery beds as *offsets*.

O

Bulbs,

Bulbs, propagated from *offsets*, produce a flower exactly like the parent; and *varieties* are only to be obtained from *seed*, which never produces flowers quite like the original the seed came from.

Let *seed* be saved only from choice flowers, be thorough ripe, and being hardened a little in the sun may be sowed soon after, in pots, or boxes, of good light earth. See page 284. Persons of leisure and curiosity, would do well to amuse themselves in this way that we may not be so much indebted to *foreigners*, for a supply of new flowers.

An *observation* may be here made, that the *same* bulb (as is often thought) does not always continue for some are *renewed every year*, as the *tulip*; and others the second, third, &c.; so that when taken up to remove *offsets*, the principal bulb of the tulip, &c. which is commonly esteemed the old one, is, in fact a *new* formed one, though (perhaps) not less in size and it may be bigger.

* * * * *

As many *SHRUBS* (i. e. woody plants) are propagated in a view principally to their *flowers*, they will properly enough be considered a little here, as to their propagation. See section 9.

The *deciduous shrubs* that are most usually cultivated for their ornamental nature, will be found in the list of the *next section*; and their modes of *propagation* are denoted thus:—*b.* budding—*c.* cuttings—*g.* grafting—*l.* layers—*r.* roots—*f.* seeds—*fl.* slips—*ju.* suckers—*r.* roots includes *offsets*.

Of the various methods of *propagating trees and shrubs*, that by *seed* is the best, where it can be adopted (as has been observed) and the season is *autumn or spring*. If in *autumn*, it may be earlier, or later, the seeds ripen; for soon after they are ripe is the most proper time to commit them to the earth, covering them finally

smaller seeds from half to a full inch ; kernels, nuts, &c. from two to three inches, according to their size. Any sort that it is doubted will stand the winter in seed-beds, may be sown in *pots*, or *boxes*, set in a garden frame or housed in severe frosts. If in *spring*, (as it is a good rule to sow a little at *both* seasons, and some tender sorts require the latter) the seed must be *carefully* kept from damp and vermin, and put into the ground towards the end of *February*, or early in *March*. The seeds of some of the more delicate sorts will require to be sown, at this season, on a slight *hot-bed*; and if a few of *most* of the sorts were thus treated, it would be a good method, to insure their germination, and to forward them. Let spring sown seeds be watered occasionally, according to the weather, to keep them moist. The earth they are sown in should be moderately light, dry, and rich, and formed into beds of four feet wide, either in *drills* or at *broad-cast*, first drawing earth off into the alleys, to cover with. See p. 69, 71.

American trees and shrubs do very well in this climate, but the young plants are generally tender, and should have some protection, one, two, or three years, till they get woody, and inured to the climate.

For *grafting* and *budding*, (as some shrubs are propagated this way) see the section *On Grafting*; and for the propagation by *suckers*, *cuttings*, *layers*, &c. see section 5; about *suckers*, see pages 64, 111. Those trees, or shrubs, from which *cuttings* of the *same* year's growth may be had in *June*, or *July*, may be greatly helped to strike root, by covering them close with a *hand-glass*; (as directed for the *arbutus*, list 5, sect. 19) and if a glass were put over *layers*, that are difficult to strike, it would help them.

This mode of *propagation* is particularly adapted to some sorts of *evergreen* shrubs, which emit fibres more freely from the *youngest* wood. If year old wood is treated thus, the cuttings may be set early in spring; and glasses may be put over those put out in autumn.

But spring cuttings, treated as the *arbutus*, is the surest method to make difficult sorts strike root.

It may prove an *observation* of some use, that trees and shrubs raised from *seed* grow the largest, from *layers* generally less, and from *cuttings* the least. Where *budding* can be practised, it is preferable to *grafting* for the propagation of shrubs.

For *planting* and *managing* shrubs, &c. see section 9. For *pruning*, see page 166.

SECTION XIX.

LISTS OF TREES, SHRUBS AND FLOWERS.

*** The names of the choicest sorts of *fruit trees* will be found in section 17.

THE *modes of cultivation* are here directed by the letters, as in last section; adding m. for *moist*, w. for *wet*, and d. for *dry*. Those not marked are to be understood as (pretty much so) *indifferent* as to soil, and indeed those marked otherwise *may* grow in a contrary kind, and often do, though not so flourishing or safely as to extremes of heat or cold.

The *time of flowering* is annexed to those trees and shrubs that are *thus* at all ornamental, and the most *ordinary heights* they are found to attain are denoted in the *arrangement*; a circumstance hitherto much wanted, as useful and *necessary* to be known, in order to a right disposal of them. Those of a naturally late growth have been, sometimes, planted behind in *shrub* *beds*.

series, &c. and the taller forward; but yet this unfortunate circumstance must be unavoidable to every inexperienced planter, who has no other guide, than that this is a *tree*, and that is a *shrub*, which are vague, indefinite terms as to stature.

The *colours* of the flowers are generally mentioned, as agreeable to be known, and of use in the disposal of trees and shrubs at planting, to diversify the scene with more propriety. In a few instances the flowers, either as to time or colour are not noticed as being too insignificant to be ornamental, though the fruit, or foliage, or both are.

Such *observations*, as may be thought most useful and necessary, will follow each *list*; but as neither *all* the sorts, nor the *varieties* of each sort, could be enumerated in such a work as this, so also the *minutiæ* of propagation, &c. is more than could be comprehended, or expected: Folio volumes (so copious is the subject) have left a variety of plants unnoticed, and much unsaid respecting cultivation. For *ordinary* use, a greater enumeration, or more enlarged particulars, would indeed have made the book *less* valuable. If the *selection* and information is good, (and pains have been taken in the business) those for whom this book is designed, will have no reason to complain.

The *names* of trees, shrubs and flowers, are in many cases various, as sometimes a *scientific* name prevails, and at other times a *trivial*; and of neither is there a perfect agreement, for of both there is often more than one. The object therefore here has been, to give *that* name by which each is supposed best known. Different plants are sometimes called by the same name, and a nice discrimination is made by botanists, according to *flower*, *leaf*, &c.; but these are no farther noticed than necessary. Such descriptions are given of each, as cannot (it is hoped) fail to identify the sort, when applied for to any nurseryman.

In the following *lists of trees*, the *larger* are marked with an *asterism*; and in the *lists of shrubs and flowers*, discrimination of size is made by *figures*, each being divided into four sorts, as to *height*; the lowest are marked No 1. But it is ever to be understood, that the *soil*, and other circumstances, will make a difference, as to stature; so that the greater *may* become the less, and the less the greater.

Where &c. is affixed to sorts, it means that there are others; and where it is added to the time of flowering, it signifies of more than one month's duration. It is the nature of some things to keep in blow nearly all summer; to encourage which, and to strengthen the plants, dead or dying flowers should be speedily taken off, as they occur. See page 56.

* * * * *

I.

LIST of *deciduous trees*, usually called *forest*, or *timber trees*, serving both for use and ornament:

- Abele*, is the white poplar; *Aspen* the tremulous poplar
- * *Alder*, common, hoary leaved, American, &c. c. l. f. w.
- * *Ash*, common, and American white, red and black, f.
- * *Beech*, common, and American purple leaved, f. l. d.
- * *Birch*, com. white, Virginian, and Canadian; &c. f. l. fu.
- * *Chestnut*, edible Spanish, and common horse, f. May.
- * *Cypress*, deciduous, or Virginian swamp, l. f. w.
- * *Elm*, small and broad leaved, wych, or Scotch, &c. f. l. fu.
- * *Hickery Nut*, smooth white, and rough barked f.
- * *Hornbeam*, common in variety, as to leaf, f. l.
- * *Lime*, common, red-twigged, black American, &c. l. c. f.
- * *Larch*, common red, white and black American, &c. f.
- * *Maple*, greater, Norway, and Italian, l. f. fu. May
- Sugar, plain tree, mountain, &c. ditto
- for other sorts, see the lists 2 and 5.
- * *Medlar* com. German, Nottingham and Italian, f. l. May
- * *Mountain ash* is sometimes a forest tree, see next list
- * *Nettle tree*, as next list, grows large, and is a forest tree
- * *Nut tree*, common hazel, or any orchard sort, l. fu. f.

* Oak

- * Oak English, American sorts, Spanish, Italian, &c. *f.*
- * Plane, Eastern, Western; middle or Spanish. *f. l. c.* May
- * Poplar, white, black, tremulous, and Carolina, *c. l. su. m.*
- * Service tree, the wild or maple leaved, *f. l.* June
- * Sycamore, is the great maple, which see.
- * Walnut, the common, or royal, and black Virginian, *f.*
- * Willow, white, or silver leaved, purple and sweet, &c.

* * For underwood amongst forest trees, the usual sorts are, *alders, ash, beech, birch, hazel, hornbeam, fallow, willow*, and sometimes the *wych-elm, common maple, poplar, and sycamore*.

OBSERVATIONS ON PARTICULAR TREES.

Alders, cuttings of it grow readily, and may be thick truncheons a yard long, pointed, and thrust into soft ground half way, or into a hole made with an iron bar. This is the way also to propagate *poplars, willows, and fallows*; also *elders*. There is a dwarf alder.

Ash, the American sorts do not grow near so large as the common English. For the *ornamental ashes*, see the next list.

Birch is reckoned the worst of timber, yet the wood has its uses in several particular businesses. The American sorts grow much larger than the *English*. The tree is of that accommodating nature, that it will grow in any soil or situation, wet or dry. It is well known, that a *wine* is made of its sap, by boring holes in full grown trees in spring, before the leaves come out: from a number of trees a great deal may be collected. Without being unpleasant, (if properly made) *birch wine* is relished by many, and is reckoned very medicinal in scorbutic, and other complaints. * There is

* It has been the wish of the author to speak of the *medical properties* of many plants that have occurred in this work, but room could not be allowed it. The *process*, &c. of *birch wine*, with the *properties* of most plants will be found in *Meyrick's Family Herbal*, 8vo. a good book.

a method of catching the liquor, by putting into the holes (deeply bored) *faucets of elder*. See next list.

Chestnut, ornamental. See the next list.

* *Elm*, the *wych* is the quickest grower, and will flourish in any soil; but the broad leaved is reckoned the best timber, and the small leaved the most ornamental: it should have a good soil. The *wych* is easily raised from seed, (sown directly after it is ripe) but the other sorts are propagated from suckers, or layers, or grafting on the *wych*. In order to obtain *suckers*, and shoots for layers, *stools* are to be formed by cutting down some young trees, almost close to the ground. Trees from layers are better than from suckers. Observe, that *whatever* is to be propagated by *layers*, or *suckers*, making *stools* is the way to procure them.

Hornbeam, the common sort will grow very large in some soils, but the *Virginian* (flowering yellow) will hardly reach thirty feet, and the *hop* not above twenty. The *hornbeam* feathers down lower and thicker than any other tree, and the property of holding its decayed leaves on all winter, adapts the common sort for a screen from winds. See page 111.

Nut tree, as timber, will be best propagated from nuts, either to remain where sown, or planted out while young, keeping the stems trimmed up, free of shoots, to about five or six feet, (according to strength) and then to form a head, topping the leading shoot for the purpose, which will occasion several branches to proceed from the upper eyes; and this is the way to form all sorts of trees to good heads.

Oak, the *English* produces the best wood, but the *American* sorts are the fastest growers, though they do not attain to the size of the *English*. A cool strong soil produces the handsomest trees, and toughest timber. Oaks should not be above three or four years old before they are planted, for the older they are, the more check they receive, and it is a tree that does not transplant well. Hence all the care should be taken that can be in

in the business. See *section 10*. But oaks succeed best without removal, having a *tap*, or downright root, which is frequently broke in taking up: *All* trees would probably thus come finer, if it was convenient. The consequence of preserving the tap has been suspected; but it is certainly Nature's direction, for rather than give up the point, the tap of the oak will make its way downward, in a direct line, through the hardest soils. See page 80.

Poplar to propagate by cuttings, see *alder*; but younger and smaller cuttings for this tree do better, as those of one or two years old, and half a yard long: The black poplar does not succeed well by truncheons.

Walnut, when planted for timber, should be young, and the tap root, if possible, preserved whole. The black Virginian grows more erect, but the other makes the largest tree, and best wood. The white Virginian is the *bickery nut*. All these make the best trees, when grown from seed without transplanting.

Willow and *fallow*, to propagate by cuttings, see *alder*.

*** Of all the *forest trees* here mentioned, the *ash*, the *beech*, the *elm*, and the *oak*, are the principal; and to plant these, and others, is a work of the most commendable, and eventually of the most profitable kind. See pages 78, 112, 119, &c.

* * * * *

II.

LIST of large *deciduous trees*, considered chiefly as *ornamental*, for pleasure grounds, &c.

Acacia, triple thorned, fewer thorned, &c. *f. l. c. fu.* July
Ash, Calabrian manna, and large flowering, *f. gr.* Apr.
 — weeping and variegated, wh. and yel. leaved, *b. gr.*
 — dwarf flowering (small white bunches) *f. gr.* May
Beech, white, and yellow striped leaved, *b. gr. in.*

- Birch*, weeping or pendulous twigged, *f. l. fu.*
Buckthorn, common purging berried, *l. fu. c.* May
- * *Catalpa* (tree bignonia) or trumpet flower, *c. l. f.* Aug.
 - Cherry*, the bird, common and Cornish, &c. *f. b. gr.* May
 - *Cornelian*, male cornus, or cornel, *f. c. l. fu.* Apr.
 - * *Chestnut*, scar. and yellow flow. strip. leaved, *f. b. gr.* May
 - Date plum*, or *persimon*, is the *pisbamin* below.
 - * *Elm*, pendulous twigged and variegated leaved, *l. gr.*
Frangula, alpine and berry bearing alder, *f. c. l. fu.* June
Gleditsia is the *acacia* above, which see.
Hornbeam, variegated, hop, and oriental, *gr. f. l.*
Laburnham, com. broad and narrow leaved, *f. c. l.* May
Larch, or the deciduous *pine*, see last list.
 - * *Lime* (or linden tree) with variegated leaves, *l. c. gr.*
Magnolia, umbrella, glaucous leaved, &c. *f. l. c.* June. *d.*
Maple, scar. flowering, and mountain, *l. f. fu.* May
 - *Cretan* or *Levant*, and *Tartarian*, ditto.
Mountain ash, or bird's service, pl. and strip. *f. l.* May
 - * *Nettle tree*, black, and purple fruited, *f. l. fu.* May
 - * ——— bloach leaved of both sorts, *gr.* May
 - * *Oak*, striped, and red leaved *Virginian*, *b. gr. f.*
Pisbamin plum, or date, European, *l. f. fu.* May, *d.*
 - * *Pistackia nut*, or com. turpentine tree, &c. *f. l.* May
 - * *Poplar*, with variegated or striped leaves, *c. l. gr.*
 - * *Robinia*, com. or false acacia, wh. flow. *f. c. l. fu.* June
 - for other sorts, see the following list
 - * *Service tree*, or sorb apple, true, and bastard, *f. l.* May
Tacamahacca, or balsamic poplar tree, *c. l. fu.*
 - * *Tulip tree*, sometimes called lily flowered, *f. l. fu.* July
 - Viburnham*, or meally way-faring tree, *f. l. c. fu.* May
 - American sorts, and striped, *b. gr. in.* May
 - * *Willow*, weeping, shining leaved, and yel. twigged, *c.*
- * * These *ornamental* trees are proper to plant at the back of shrubberies, &c. and here and there one on the skirts and fronts of *woods*, or *plantations* of timber, and along the *boundaries* of grounds. Here they will appear to great advantage; but more so, if planted *singly* in detached situations: Most of them are good wood for timber, serving one purpose or other.

OBSERVATIONS ON PARTICULAR TREES.

Buckthorn, if raised from seed, sow early in autumn, as soon as the berries can be procured, and perhaps some may come up the following spring, but most of them will lay another year. This is the case with other seeds, as *sweet briar*, &c. See page 78.

Catalpa should grow singly, that it may have its natural wide spread, and, if possible, let it be on a plat of grass, where it will appear to great advantage. It is very hardy; but as it comes out late, it is advisable to give it a favourable aspect.

Maple, of the scarlets, there are the *Virginian* and sir *Charles Wager's*, both very ornamental, but the latter most so. The *Mountain* hath shining leaves, and continues late in autumn.

Magnolias are to be considered as rather tender, especially young plants. The glaucous leaved is of the lowest growth, (about ten feet) but all are elegantly ornamental with their white flowers: There is also a blue flowered one. Let them have a dry soil, as all tender plants should, as well as a warm situation.

Mountain ash produces its white flowers in May, but they are little ornamental. Its foliage, however, is pretty, and its fruit of red berries is one of the greatest ornaments of autumn, coming very early, and hanging all winter, if the blackbird, &c. will let them alone. As it deserves the most conspicuous situation, it will be proper to plant some near the house, and where birds may be disturbed from too frequent visits.

Pishamin, or *date plum*, is chiefly cultivated here as ornamental for its shining leaves; its fruit is, however, eat by some, like the *medlar* and *serb*, in a state of decay. House young plants in pots the first winter: Allow this tree a dry soil and shelter.

Pistachia, this is the hardiest of three sorts. Treat it as a tender plant, whilst young, for three or four

years, and let it have finally a sheltered situation from wind, and a dry soil.

Tulip-tree is tender whilst young, but afterwards very hardy; is uncertain in flowering, but handsome in its leaf and growth, and has been used to be planted singly on lawns, &c. It is a native of *Virginia*, where it attains to so vast a size, as to be from twenty to thirty feet in girth, though here it keeps pace only with an ordinary elm.

Virburnum, or way-faring tree, is very pretty, in its hoary leaves, and white flowers, succeeded by fruit in autumn, in bunches of red berries. The *American* sorts grow not near so high, but they rarely ripen their berries here. The *variegated* sort does not grow so large as the plain, which is the case with all striped plants. See next list.

* * * * *

III.

LIST of smaller *deciduous trees*, or *shrubs* of tree growth, *ornamental* for pleasure grounds.

- * *Almond tree*, sweet and bit. red and wh. flow. *f. b.* April
- * ——— oriental silver leaved, *f. b.* April
- Amorpha*, or bastard indigo, pur. flower, *f. fl.* June
- Andromeda*, tree sort, or Carolina sorrel tree, *l. su. f.*
- * *Apple*, Siberian and Virginian crabs, *f. gr.* May
- * ——— Tartarian crab, beautiful large fruit, *gr.* May
- * ——— double flow. Chinese (*Pyrus spectabilis*) *gr.* May
- American, very small or berry crab, *f. gr.* May
- Aralia*, thorny, or Angelica tree, *yel. flow. f. r.* Aug.
- * *Azarole thorn*, Virginian cockspur, &c. *f. l. b. gr.* May
- * *Azederach*, com. bead tree, or paternoster nut, *f.* July
- Berberry*, red, white, and black, see page 263, *c. l. f. su.* May
- Benjamin tree*, or benzoin gum, *yel. flow. f. l. f.* April
- Bignonia*, see trumpet flower in this list.
- * *Bladder nut*, five and three leaved sorts, *f. su. l. c.* May
- *fena*, see *colutea*

Buckthorn,

- Buckthorn*, sea, European, and Canadian, *f. c. l.* June
Caragana, or Siberian robinia, yel. flow. *c. l. j. su* May
Cashibury bush, or bastard cassine, wh. flow. *f. l.* August
 * *Cherry*, com. double white and bluish flow. *b. gr.* May
 ——— weeping or pendulous branched, *f. b. gr.* May
 * ——— *Mahaleb*, or perfumed cherry, *f. b. gr.* May
Chinquapin, dwarf American chestnut, or oak, *f. in.* May
Clematis, (a climber) see *virgin's bower*
Colutea, com. or tree bladder senna, yel. flow. *f. l.* July
 * *Date plum* (pishamin) Virginian, *l. f. su.* May, *d.*
 * *Dogwood*, or bloody twig, com. and Virginian, *c. l. f.* June
 * *Elder*, bl. wh. gr. and red berried and striped, *c. l. f.* June
Gueldre rose, often called snow-ball tree, *c. l. su.* May
 * *Hawthorn*, com. doub. scarl. berried, &c. *b. gr. l.* May
 * ——— *Glastonbury*, blows in the winter, *f. b. gr.*
 ——— Virginian thorned and thornless, *f. l. b. gr.* May
 * *Judas tree*, com. and Canadian, pur. red. wh. *f.* May
Kidney-bean tree, Carolina, (a climber) blue, *f.* July *d.*
 * *Lilac*, com. purple, blue and white flow. *f. su. l.* May
Medlar, woolly leaved, pur. fl. red fruit, *f. l. b. gr.* May
 * *Nettle tree*, eastern vel. flow. and bloached, *f. l. c. gr.* May
 * *Oleaster*, narrow leaved, or wild olive, *l. c.* June *d.*
Peach, doub. bloss. as a standard, no fruit, *b.* April
 * *Pear*, doub. bloss. harsh baking fruit, *b. gr.* May
Plum, doub. bloss. and striped leaved, *b. gr.* May
Privet, deciduous, plain and striped, *f. su. l. c.* June
Robinia, or rose acacia, scar. flow. *f. c. l. su.* May
 ——— shrubby quaternate leaved, yel. *l. f. su.* June
 * *Spindle tree*, nar. broad, and striped leaved, *f. b. c. gr.* Ap.
 * *Stewartia*, or Malacodendron, white flow. *f. fl. l. c.* June
Sumach, tanners, wh. fl. and stag's horn, red, *l. su. f.* June
 ——— Carolina scarlet, and Canada red, &c. ditto
Tamarisk, French, with pale red flowers, *c. l. f.* July
 ——— Venetian, (cotinus) pur. flow. *l. su. f.* July
 * *Trumpet flower*, (bignonia) scarlet and yellow, *c. l. f.* July
Viburnum, American sorts, white flow. *f. l. c. su.* July
Virgin's bower, entire leaved, doub. pur. flow. *l. c.* Aug.
 ——— single pur. blue, red striped, *b. c.* July
 ——— see *clematis*, in the next list
 * *White beam*, or white leaf tree, wh. flow. *f. l. su.* May

OBSERVATIONS ON PARTICULAR TREES, &c.

Andromeda tree is tender, and must therefore have a situation accordingly. It is always a part of the green-house furniture, but does sometimes abroad; and it is very well to try what may be done with the *hardiest* green-house plants.

Apple, these crabs produce rather slender wood, and therefore should not be in a crowded, or shady situation, but rather, as much as possible, in detached single plants. The fruit of the three first makes superior *tarts*, and the latter an excellent *preserve*; and the fruit of all of them may be introduced in the *desert*, when full ripe. Allow the *double flowering* apple a good situation, to preserve its charming crimson blow as long as possible.

Azederach consider as tender; its foliage is beautiful, flowers white, and fruit yellow.

Cashibury bush must have a sheltered situation, particularly the young plants, which should be protected for two or three winters.

Spindle tree (sometimes called *prickwood*) is very beautiful with its leaves in autumn, for which (as many other plants) it is chiefly considered as ornamental, its flowers making no show. The seed lies two years before it comes up.

Stewartia a fine shrub, a little tender whilst young. *Layers* require two years to strike. *Cuttings* manage as directed for *arbutus*. Seeds are imported from *Virginia*.

Trumpet flower, sometimes called *scarlet jasmine*, is a trailing plant, and therefore requires training to a wall for support; or having something to climb on it will proceed much in the way of an *honeysuckle*. It is rather tender, and must have a good situation, but when properly managed is a great beauty. Prune it to a few eyes, precisely upon the principle of a *vine*. The shoots will strike into cracks of the walls and mount high where there is room. See *Catalpa*, last list.

LIST

* * * * *

IV.

LIST of the lower deciduous trees and woody plants, called *shrubs*, cultivated for ornament :

- 2 *Almond*, dwarf, sing. and doub. red fl. *f. su. b. gr.* April
- 2 ——— dwarf, with leaves hoary underneath, ditto
- 3 *All spice tree*, Carolina, or pompadore, *l.* May *d.*
- 1 *Allyson*, prickly and hoary leaved, wh. *f. su. c.* July *d.*
- 4 *Alibea frutex*, pur. red, white strip. fl. &c. *l. su. f.* Sept.
- 3 *Amelanchier*, dwarf bl. fruited medlar, *f. l. su. b. gr.* May
- 2 *Andromeda*, shrubby wh. yel. red and pur. fl. *f. l. su.* July
- 3 *Aralea*, herbaceous Canada and Virginian, *r. f.* June
- 4 *Azalia*, American honeysuckle, wh. red, scar. *l. r.* July
- 4 *Bladder senna*, Pocock's early deep yellow, *f. l.* June
- 4 ——— oriental, or the blood red, *f. l.* July
- 3 ——— shrubby Ethiopian scarlet, *f.* Aug. *d.*
- see *colutea* in the last list, and below
- 4 *Bramble*, doub. blossomed, and wh. berried, *l. su. f.* May
- 4 *Briar*, sw. sing. doub. semi. pink and scar. *f. su. l.* June
- 2 *Broom*, com. English, Dyer's, and dw. Portugal, *f. r.* May
- 3 ——— large Portugal, and upright, Montpellier, *f. r.* June
- 2 ——— wh. flowered, trailing and upright, *f. r.* June
- 2 *Buckthorn*, dwarf purging berried, *f. l. c.* May
- 3 ——— long leaved dwarf ditto, *f. l. c.* May
- 4 *Button tree* (*cephelanthus*) American, *f. l. c.* July
- 2 *Clematis* (*virgin's bower*) upright wh. blue, *r. f.* June
- 4 ——— oriental, climbing yel. flow. *l. c.* May, &c.
- 4 *Candleberry myrtle*, wh. flow. blue berried, *f. l. su.* June m.
- 3 ——— dw. Carolina, br. leav. *c. l. f. su.* Ju. m.
- 4 *Chaste tree*, nar. and br. leaved, pur. and wh, *l. c.* Sept.
- 3 *Cherry*, com. dwarf, and dw. Canada bird, *f. b. gr.* May
- 4 *Clethra*, alder leaved, full of wh. flow. *f. l. su.* July, &c.
- 1 *Colutea* (*coronilla*) joint-podded, Spanish, &c. *f.* June
- 3 *Cotoneaster*, (a medlar) dwarf quince, *f. l. b. gr.* May
- 4 *Careopsis*, two American sorts, yel. flow. *off.* July, &c.
- 2 *Cinquefoil shrub*, (*potentilla*) com. yel. flow. *su. f. c.* June
- 1 ——— grandiflorus, and silvery, yel. fl. *r. f.* June
- 1 ——— wh. flow. upright, and trailing, *r. f.* June

3 *Cytisus*

- 3 *Cytisus*, bl. basel, and sessile leaved, *f. c. l.* June, *d.*
 3 *Elder*, dwarf, wh. flow. and black fruit, *f. c.* July
 3 *Gale*, the sweet willow, or Dutch myrtle, *r.* June *w.*
 2 *Germander tree*, wh. yel. and pur. flow. *f. c. f.* July, *d.*
 4 *Hawthorn*, gooseberry leaved, yel. fruited, *f.* May
 3 *Hamamelis* (witch hazel) Virginian, *f. l.* flow. in wint.
 4 *Honeysuckle*, climbing Eng. wh. and red, *c. l. f.* June, &c.
 4 ——— climbing Dutch red, early and late, ditto
 4 ——— climb. Italian, wh. red, and yel. *c. l. f.* May
 4 ——— erect fly, wh. flow. and red berry, ditto
 3 ——— erect alpine, red flow. and red berry, ditto
 3 ——— erect acadian (*dier-villa*) yel. *l. c. f. su.* May
 ——— there are two climbing striped leaved sorts.
 3 *Hydrangea*, Virginian white flowering, *r. su.* Aug. *m.*
 3 *Hypericum frutex*, br. and nar. leaved, *l. su. c.* June
 4 *John's wort*, stinking, inodorous, and Canary, *su. f.* June
 1 ——— large flow. somewhat tender, *su.* Aug.
 4 *Itea*, Virginian, full of white flowers, *l. f.* July, &c.
 4 *Jasmin*, wh. fl. plain, and wh. and yel. strip. *l. c.* June
 4 ——— trailing yellow flowered, *l. c. su.* June, &c.
 2 ——— erect dwarf yel. flowered, *l. c. su.* July, &c.
 4 *Ivy*, deciduous five leaved, or Virginian creeper, *c. l. f.*
 4 *Mallow tree*, com. shrubby lavatera, *f. c.* June, &c.
 3 ——— three and five lobed shrubby do. *f. c.* June
 3 *Medlar*, dwarf alpine, red fruited, *f. l. b. gr.* May
 3 ——— Canada, snowy, purple fruit, ditto
 ——— see *amelanchier* and *cotoneaster*
 2 *Mezereon*, wh. purp. reds and crimsons, *f.* Feb. &c.
 2 *Orobis*, or bitter vetch, purp. and blue, *f. r.* Apr. &c.
 4 *Persian lilac*, blue and white flowering, *f. su. l.* June
 2 *Poison oak*, common, white flowered, *r. l. f.* July
 4 ——— *ash*, or varnish tree, ditto
 5 *Purshane tree*, sea, two sorts, *c.* Aug.
 4 *Pomegranate*, sing. doub. and strip. flow. *l. b.* in July
 4 *Raspberry*, common sweet flowering, purple, *su.* July
 2 *Rest harrow*, com. shrubby purp. flow. *f.* May, &c.
 2 *Rhododendron*, alpine, and Mount Baldis red, *f. c. r.* Sep.
 3 ——— ferrugineous leaved, red flow. *f. c. r.* Aug.
 2 *Robinia*, dw. quaternate leaved, yel. flow. *f. c. l. su.* May
Roses: The *lowest* sorts are, dwarf Scotch single red.
 —dwarf common single white.—dwarf Pensilvanian single
 and

and double red.—dwarf burnet leaved single red and striped.—rose de meux.—crimson Burgundy, and dwarf blush Burgundy.

Middling heights.—Cinnamon, single and double red—common red and white, single and double, and semi-double—monthly red, blush, white and striped—maiden's blush double—virgin pale red thornless—moss provence double red—rose of the world, semi-double striped—velvet, double and semi-double.

Taller sorts are,—Provence red, blush, and white double—damask white, red, and blush semi double—York and Lancaster semi-double variegated—Austrian single, yellow, and another single, red one side, and yellow on the other—double yellow.

Tallest sorts are,—Apple bearing, single and double red—royal red—Frankfort, purple red—great burnet-leaved, single red—Carolina and Virginia single red—musk, single and double white.

Scorpion fena, com. large, yel. flow. *c. l. f.* June, &c.

———— common dwarf, ditto

Snowdrop tree, or fringe tree, white flow. *f. l.* June

Spirea frutex, com. willow leaved, pink, *su. l. c.* June

———— downy leaved red, and wh. flow. ditto

———— guelder rose leaved, wh. flow. *su. l. c.* July

———— Siberian and Spanish, wh. fl. *su. l. c.* May

Sumach, myrtle leaved, white flowered, *su. l.* June

Sun-flower, tickseeded, see *coreopsis*

Syringa, large plain, and stri. leaved, wh. *c. l. su.* May

———— dwarf double-flowered, white, ditto

Tamarisk, German, very pretty, red fl. *c. l. f.* July, &c.

———— for other sorts, see last list

Toxicodendron, see *poison oak* and *ash*

Tree trefoil, black base, (*secundus clusii*) see *cytissus*

Tutsan, or park leaves, (like *St. John's wort*) *su. f.* July

Vetch, wood, or sylvan, wh. many flowered, *f. r.* Aug.

Virginian silk, variety, pur. flow. a climber, *c. l.* July

Willow herb, or French willow, pur. &c. *r. f.* July, *m.*

———— see *loeseltrife*, list XI.

* As it is common to plant low herbaceous perennial flowers in the front of shrubberies, &c. so amongst the shrubs, some of the loftier sorts may properly be, though annual

annual in stalk, as the tall *aconites*, or *monkshoods*, *asters*, *everlasting sun-flower*, &c.

OBSERVATIONS ON PARTICULAR SHRUBS.

All-spice-tree must have a warm and dry part of the shrubbery. The whole plant is aromatic.

Aralia, thorny, is propagated by pieces of its large roots, and perhaps many plants might be so: In this way, the *pyramidal campanula* succeeds.

Azalea likes cool ground, and rather shady; must be sheltered as to winds, and in this climate should rather have a dry soil, kept cool by occasional watering during summer. It is a very beautiful upright shrub.

Candleberry myrtle is so called, from the Americans procuring a wax from the berries of this plant to make candles of. It is rather tender, yet likes (as many *American* plants do) a moist soil; let it be well sheltered from bleak winds.

Clethra is an elegant shrub, flowering all summer and even winter; it prefers a moist soil.

Colutea is too tender to abide severe winters, but in general will do, with a little attention: Its flowers are pretty, of a bright yellow. The other sorts (three) are more tender, and are to be potted for protection from frosts, by housing them.

Cytisus, deciduous and evergreen, there is a variety of, and all very ornamental, with their yellow flowers. They are rather too tender for the open ground, and the hardier sorts here mentioned, if tried abroad, must have a dry warm situation. *Seedlings* should be housed, or well protected in frames for the first winter, but not kept too close.

Germander tree treat as tender, for though it will live abroad, it is mostly a green-house plant.

Hydrangea consider as rather tender, and pot some: it can hardly be kept too moist at the roots.

Mallow tree manage as the *cytisus*, though it is not quite

quite so tender. All *seedlings* that can be brought up in the open air, make much finer plants. The tender sorts should be put out in nursery-beds, and *occasionally* protected by covering, and some potted to be *occasionally* housed.

Poison trees, even the touch of the leaves of these plants will affect the skin, but the sap is *very* (even dangerously) acrimonious.

Pomegranate must have a good south wall, and rich soil. The double sort should be occasionally matted in severe frost. In *very* favourable situations (however) they have succeeded in *espaliers*, dwarf, half, and even full standards. The best season for planting the pomegranate is in spring, when just beginning to shoot. It is rather rude of growth, and must therefore have timely training. The principal pruning should always be in *autumn*, and from time to time all straggling, superfluous growths taken off, that shoots may be encouraged to put out strong blossoms, in the fullness of which the great merit consists. These bearers should be six inches, or rather more, asunder. The mode of flowering is at the ends of the young shoots: nothing equals this plant in fineness of blow. The double sort is more commonly planted; but the single flower is very beautiful, and its fruit, which will ripen in snug favourable situations and seasons, makes a fine show also, especially when burst. Both flowers and fruit are of a very fine scarlet.

Rose claims precedence of other shrubs. In its varieties it should be planted in all situations; but the *Provence* more particularly. This shrub, in most (if not all its sorts) does best in a cool strong soil.

The order of blowing may be reckoned thus: *Cinnamon*, (sometimes called the *May-rose*) *monthly*, *damask*, *burnet*, *Scotch*, *Pennsylvanian*, *apple*, &c. Then the latest roses we have, are those of the *monthly* again, and the *musk*. Occasionally every sort may bear a few *late* ones, but chiefly the *Provence*. To encourage this shrub

shrub to *treat* us in the latter part of the year, pulling off the first roses, as soon as they begin to decay, is a means; but to pull off all the *buds*, at the usual time of blow, from a few trees, is a more certain method. A more sure way still, is to top the new shoots towards the end of *May*, or prune down to two or three eyes. These manœuvres should be particularly exercised on the *monthly* sorts. Transplanting roses in spring, is a means to effect a middle blow; and if into a *North* border, and cool ground, this may be done late in *April*, or even in *May*, (occasionally watering) pruning at the same time short. *Early* roses are obtained by being trained against a south wall. The *monthly* thus planted, and having glass (as the light of a cucumber frame) put before it, will sometimes come as early as the end of *April*, or beginning of *May*. It is a good way to put moss round the roots of these wall trees in *March*, to keep the ground warm, and at the same time moist, which helps us to both forward and large roses in dry situations water.

To *dispose* rose trees to bear forward, the not suffering any flowers to blow the present year, and pruning short in *July*, or *August*, is a means from which much may be expected, especially if there is any artificial warmth used in the spring to force them. With view to this, some good brushy rooted, low growing plants, may be potted in *autumn*, not suffered to bear the next *summer*, and being pruned down (as above) will force well the next *spring*. Rose trees potted for an ordinary blow, must not be in too small pots, nor placed in a warm situation, except early in *spring*, and must be kept cool by frequent watering.

As to the *propagation* of rose trees, many will send forth *suckers* enow, and those that do not, should be *layered*, by flitting (as carnations) or budded; but may be two years before they root. See page 66. Some will come by *cuttings*, but uncertainly, as the *burgundy* &c. The *China* evergreen, or everblowing rose, take

well by cuttings; but it will not do abroad, except in the summer months, and therefore is not in this list: There are two colours pale and deep red: It grows slow, and rather weak. The *burnet, apple*, or any other sort, producing good seed, may be propagated that way; but it is a slow way, the seed seldom coming up till the second year. The *double yellow rose* blows indifferently, but *when* fair, the flowers are very beautiful. Plant it against an east wall, and in dry, but strong ground.

Snow-drop tree is considerably ornamental. Layers will be two years in rooting. If raised from seed, (imported) sow it as soon as it arrives, in pots, or boxes, and house before frosts come. If they come not up the first year, set them on a gentle heat the following spring, and they will soon appear. Shelter the seedlings in a frame, or a green-house.

Tutsan grows wild in woods, and will therefore do well in the shade, as among trees. Every shrub, or plant, that *will* flourish in such a situation is valuable; and a gardener's attention will be well employed to discover them, by trials, &c. The *St. John's wort*, and *St. Peter's wort*, (allied to *tutsan*) may be planted in the shade.

Willow herb, as its roots run much, should some of it be potted; and as it loves moisture, may be set in the shade, and kept well watered.

* * * * *

V.

LIST of *evergreen trees*, some of which are considered as forest, or timber trees.

- * *Arbor vita*, common American and Chinese, *f. l. c.*
- Andromeda*, or Carolina forrel tree, *f. l. su.* July, *m.*
- Arbutus*, com. and scar. fl. sing. and doub. *f. l. c. in.* Nov.
- * ——— oriental, broad leaved, ditto, *d.*

Bay

- Bay tree*, common, doub. fl. and striped leaved, *l. f. fu. d.*
Box tree, broad and narrow leaved, *f. l. fl. c.* See list 6.
- * *Cedar of Libanus*, Carolina, and Virginia, *f.*
 — Phœnician, Lycian, and Bermudian, *f.*
Cork tree, see the article *oak*
 - * *Cypress*, large common upright, and male-spreading, *f.*
 — Portugal pendulous, or *goa cedar*, *f.*
 — the lower upright, or pyramidal shaped, *f.*
 - * *Fir*, spruce, Norway, American sorts, &c. *f.* See *Pine*.
 - * — silver, (i. e. the pitch fir) and balm of gilead, *j.*
 — hemlock, and variegated balm of gilead, *f.*
Holly, several plain, and many variegated sorts, *f. l. gr. b.*
 — Dahoon, and Yapon, or S. sea tea tree, ditto
Juniper, Swedish, and two Spanish sorts, *f.*
 — see *cedar*, Virginian, (i. e. the red) &c.
Laurel, com. cherry bay, and striped sorts, *l. c. f. fu.*
 — Portugal, reddish wood, bright leaves, ditto
Maple, evergreen cretan, *l. c. fu.*
 - * *Magnolia*, or laurel leaved tulip tree, *l. f. c.* August
 - * *Oak* (i. e. *ilex*) common evergreen, br. and nar. leaved, *f.*
 - * — Montpelier, or holly leaved oak, *f.*
 - * — cork tree, broad and narrow leaved, *f.*
 - * — Molucca, or the American live oak, *f.*
 — scarlet-bearing, or the kermes oak, *f.*
 - * *Pine tree*, wild Scotch pine, commonly called *fir*, *f.*
 - * — pinaster, stone, mountain Siberian, *f.*
 - * — Weymouth, torch, or Virginia swamp, *f.*
 - * — Carolina swamp, or prickly coned, &c. *f.*
Privet, common evergreen, white flower, *f. fu. l.* June
 - * *Pyracantha*, or evergreen thorn, red berry, *f. l. c.* May
 - Savin*, large upright Portugal. See next list, *f. l. c.*
Spindle tree, American plain and striped evergr. *f. l. c.*
Strawberry tree, see *arbutus* in this list.
Yew, short, narrow, broad, and striped leaved, *f.*

- * * Some of these, though they attain, in a course of years, considerable height, may be occasionally considered as large *shrubs*, instead of trees, and planted accordingly: Skilful pruning will help to keep large shrubs down, and lead others to mount.

OBSERVATIONS ON PARTICULAR TREES.

Andromeda tree should have a dry soil, and sheltered situation; protect first winter after planting.

Arbor vitæ, though both sorts are in estimation, yet the *Chinese* is most ornamental. Naturally they are of large growth, and hardy, yet sometimes the *Chinese* sort is kept in pots, as an agreeable companion (for several years) of other exotic evergreens.

Arbutus may be propagated from the first young shoots of the summer, planting them in pots, and putting them in a moderate hot-bed, (rather of *bark*) covering close with a *hand-glass* that is air tight; and thus most tender shoots of woody plants, which are found difficult to strike, may (most probably) be made to grow, as the *bay*, *celastrus*, *cypress*, &c. They may be tried on a warm border, keeping the earth cool, and the glasses close. If the cuttings are planted just within the glass, watering well round the outside will reach them, and thus they need not be uncovered: If the glasses are taken off for watering, it is not (however) material, if they are carefully fixed close again. As soon as the cuttings appear clearly to grow, air must be given them. See next list.

Bay, the common plain sort is rather tender, and requires a situation sheltered from bleak winds; but the variegated and double flowered sorts are tenderer still; and as they rarely succeed well abroad, they are commonly considered as green-house plants.

Cedar, the Bermudian, is tender whilst young, and should have a favourable situation afterwards.

Fir, there is a variety of each species, denominated from the number of the *leaves*, and the shape and colour of the *cones*. The *balm of gilead*, and *hemlock*, sorts, are the lowest growers. To get the seed from the cones, lay them before a good fire, so as not to scorch them; and if they come not out well, after heating

heating this way, bore a hole up the middle, and drive something of iron in to split them open.

Oak, the evergreen sorts are excellent timber, and very ornamental in pleasure grounds: See page 27. The red excrescences upon the *kermes oak*, are occasioned by *insects* making insertions in the bark for depositing their eggs, which causing an extravasation of sap, it there condenses, and forms the little granulous substances, used for scarlet dying.

Pine, there are several other sorts of less estimation. The *Weymouth* and *torch* pines are the loftiest, and the *Carolina* swamp the lowest growers. To get out the seed, observe what is said above, as the *pine* cones are harder to open than the firs.

Pyracantha requires some support of stakes, pales or wall, though it may be trained as a standard bush or form an hedge impregnable. It is very pretty when in full fruit; but it so often misses being so, through bad pruning, that it is got much out of repute: See page 169. It does best in a dry poor soil, and a eastern aspect. Young *cuttings*, in *June*, will strike being potted in good earth, and set in the shade till autumn, and then plunged in the ground under a warm wall. See observations on the *Arbutus* above.

* * * * *

VI.

List of low evergreen trees and shrubs.

- 3 *Adam's needle* com. and Virginian, pur. and wh. *f. r.*
- 4 *Alaternus*, large, a variety in leaf, pl. and str. *f. l.* Feb.
- 3 ——— lower growing, ditto
- 1 *Arbutus*, trailing, or *Uva Ursi*. *c. fl. l.* Nov.
- 1 *Andromeda*, box leaved, Canada, *f. su. c.* July, *m.*
- 4 *Box tree*, white and yel, striped, *c. l.* See last list.
- 1 ——— dwarf, plain, and striped leaved, *fl. l. c. f.*
- 4 *Briar*, sw. evergr. doub. red and yel. *fl. su. l. b.* May

1 *Bugle*

- Buzlofs* evergreen trailing br. leaved, blue *f.* May.
Butcher's broom, common, knee holm, or holly, *f. r.*
 ————— br. leaved, or Alexandrian laurel, *f. r.*
 ————— long leaved, or Alexandrian bay, *f. r.*
 ————— large, or shining leav. Alexan. bay, *f. r.*
Celastrus, or staff tree (Bastard Euonymus) *f. l.* July
Cistus, poplar leaved, gum, &c. several, wh. *f. c.* May
Clematis, evergreen, or Spanish climber, *c. l. f.* Nov.
Cytisus, hairy evergr. Spanish, yel. fl. *f. c.* June, &c. *d.*
 ————— Austrian, large and small flow. yel. ditto
Furze, com. yel. and white flowered, *f.* April
 ————— French, yellow flowered, ditto
Groundsel tree, ivy leaved, oleander, &c. wh. fl. *f. l. c.*
Hare's Ear or Ethiopian Hartwort, yel. *f. c.* July
Heath, com. English pur. wh. and yel. flow. *l. r. f.* July
Hyslop, com. and striped leaved, (see p. 251) *f. fl. c.* June
Jerusalem sage, yellow and purple flow. *r. l. c.* June
Ivy, tall plain, wh. and yel. strip. *c. l. f. fl.* Sep. fr. Jan.
 ————— com. dwarf black and yellow berried, ditto
Germander tree, yel. wh. and purple flow. *f. fl. c.* July, *d.*
Horse tail, shrubby, the greater and less, *fu. r.* July
Juniper, common shrubby English, yel. flow. *f.* April
Honeysuckle, evergreen scarlet trumpet, *c. l. f.* June
Kalmia, broad leaved, pale red flow. *f. fu. l.* July
 ————— narrow leaved, bright red flow. ditto
 ————— hairy leaved, reddish purple flow. ditto
 ————— glaucous leaved, pink flower, ditto
Lavender cotton, com. and rosemary, (see p. 251) yel. *r. f.* Ju.
 ————— sea, com. and shrubby Siberian, bl. *r. fl. c.*
 ————— French, (stæchas) yel. flow. *r. fl. c.* June
Laurustinus, com. br. and nar. leaved, *l. f. c.* Aug. &c.
 ————— hairy, shining, and striped leaved, ditto
Moon-trefoil, (medicago) shrubby, yel. flow. May, &c.
Phillyrea, mock privet, or privet leaved, *f. l.* March
 ————— striped, box leaved, bay, rosemary, &c. do.
Periwinkle, trailing and upright, blue fl. *l. c. fu.* Feb. &c.
 ————— doub. fl. and white and yel. striped, ditto
Purflane tree, (sea silvery leaves,) com. and Spanish, *c.*
Ragwort, common sea, hoary leaved, *f. c.* June, &c. *d.*
Rhododendron, large, or laurel leaved, red fl. *f. l.* Aug.
 ————— dwarf, or the Pontic rose bay, *f. l.* Aug.

- 4 *Rose*, common musk evergreen, wh. flow. *l. su.* Aug.
- 4 *Rosemary*, com. plain, and variegated, *c. l. fl.* June, *d.*
- 3 *Rue*, broad, narrow and striped leaved, *c. l. fl.* June
- 3 ——— *Aleppo*, broad and narrow leaved, ditto, *d.*
- 3 *Savin*, common plain spreading, and variegated, *f. l. c.*
- 4 *Smilax*, or rough bind-weed, wh. fl. red fr. *l. r. f.* June
- 1 *Widow-wail*, (*cneorum*) a trailer, pl. fl. *c. l. f.* May, &c
- 1 *Wormwood*, sea, or lavender leaved, and Roman, *fl. r.*

* * If the tenderer sorts of these shrubs are judiciously planted, they may succeed abroad, and are worth the trial, as their place may, at any time, be easily supplied by some shrub from the nursery. While young, for a winter or two, in severe weather, a few bushes laid round, and a little peas haulm on the top, would save many a curious *exotic*, when they are nearly hardy enough to endure our climate.

OBSERVATIONS ON PARTICULAR SHRUBS.

Adam's needle (*yucca*) is somewhat tender, and should be out of the way of cutting winds.

Andromeda tree is too tender for the open ground in general, but has survived abroad, our ordinary winters being in a favourable situation. It naturally likes moist soil; but keep the roots dry in winter.

Cistus, all the sorts are rather tender, but if brought up as hardy from the sowing as may be, and planted in a dry soil, shelter and sun, will stand ordinary winters abroad in the shrubbery, and prove delightful ornaments: Cuttings do not make so fine plants as seedlings, but are hardier.

Cytisus, Spanish, must have a dry warm situation.

Germander tree, though generally considered as green-house plant, it is asserted, by some, will endure ordinary winters abroad, with proper management. Risk of experiment in these cases, or the trouble attending, should not be minded, for if a shrub will live abroad, it is surely much better there; and it has been found

found that several things will do so, which have been used to be housed, even in stoves.

Groundsel tree, or ploughman's spikenard, must have a snug situation abroad, as hard frosts are apt to cut it; and if it is potted and housed, it must have a great deal of air, as it only needs protection in severe weather. This is an argument for *trying* all things abroad, of which there is a chance of doing well, for they cannot have the air they require in a *green-house*, where are so many plants of a tenderer nature.

Hares-ear is a handsome shrub for the south front of a plantation;—somewhat tender.

Honeysuckle, evergreen, allow it a sheltered situation, and let it be as much as possible in sight.

Moon-trefoil is a very beautiful evergreen, flowering from *May* to *October*; but as it is tender, must have a dry warm situation, and then a little attention of cover in severe frosts may secure it.

Phillyrea in all its varieties, though rather a rambling grower, is considered as one of the standing ornaments of our shrubberies; yet it has beauty in neither flower, nor fruit, as is the case with some other plants, (particularly evergreens) being retained only for their foliage. The *striped* sort should have a sheltered situation, as indeed is, in a measure, necessary to all variegated plants, as their ornamental nature, in this respect, is the consequence of hereditary weakness.

Periwinkle is a pretty under shrubby evergreen, if properly kept up to the lower part of pales, or a wall, or the larger sort may be trained to a low stake, or even kept as a little bush. It is very well to confine the roots (being apt to run) by flaty stones, or tiles: it succeeds well in shade and moisture.

Purshane tree, the Spanish is not so hardy as the common sort, but will generally survive our winters, in good sheltered situations.

Ragwort, this sort (as all the others) used to be housed in winter; but will stand abroad in a warm,

sheltered, dry situation, and its hoary leaves are very ornamental, though there is no great beauty in its flowers. When raised from seed, it is apt to grow greener in leaf, and therefore it will be best raised from cuttings, which should be taken from the whitest plants. A likeness to original plants is frequently lost from seed, but is assuredly maintained from cuttings and layers.

Rose, this sort will need support, being rather trailing; train it to a sheltered wall.

Rosemary will not do in all situations. See page 256.

Savin variegated leaved is very beautiful.

Smilax, as it is trailing, or climbing, is commonly planted to run up the trunks of trees, &c. It may be trained to tall stakes, and should be planted in sight, as in the front of plantations. There are several sorts of it, and the bay-leaved Virginian has black fruit.

* * * * *

VII.

THE FLOWERS in the following list of annuals are numbered (as the shrubs were) agreeable to their most usual heights. The time of flowering is not mentioned, because that will vary, according to the time of sowing, management, and season; very few before, or after June and July. Many of the sorts continue longer in flower than a month.

TENDER ANNUALS.

- 4 *Amaranthus* tree, tricolor, and bicolor
- 3 ————— globe, purple, red, white, and striped
- 4 ————— coxcomb, com. large red, scar. yel. &c.
- 2 ————— com. dwarf coxcomb colours, as ditto
- 3 ————— spike flowered coxcombs, a variety
- 3 *Balsams*, double, red, scarlet, and purple striped
- 3 *Browallia*, spreading, and upright, blue flowered
- 2 *Calceolaria*, or slipper-wort, winged leaved

4 *Capficum*

- 4 *Capficums*, red, yellow and white podded
- 3 *Cleome*, prickly stalked, and five leaved
- 4 *Colutea*, or scarlet African bladder senna
- 4 *Convolvulus*, scarlet, (*ipomæa quamoclit*) a climber
- 3 *Egg plant*, white, yellow, red, and prickly fruited
- 2 *Humble*, or spreading branching *sensitive plant*
- 1 *Ice plant*, or diamond ficoides, wh. and yel. flowered
- 4 *Indian shot*, or flowering reeds scar. red, yel.
- 4 *Pentapates phœnicia*, scarlet flowered
- 3 *Physalis*, or winter cherry, angular and downy
- 4 *Sensitive*, or Double *Memosa*;—see *humble plant*.
- 4 *Sida*, or Indian mallow, heart leaved, pink
- 2 *Spigelia Anthelmia*, or American Worm Grass, red
- 4 *Stramonium*, or thorn apple, double purple, &c.

* * Some persons cultivate the *serpentine cucumber*, or *melon*, as a curiosity of the summer, the fruit being produced from one to two yards long, under good management; but it is to be remembered it will take up much room.

As to the *spiriting* (or wild) *cucumber*, though it may be mentioned here, it is very hardy, so as to sow itself in autumn, come up in spring, and will abide as a perennial. Sow in *March*, and allow it two yards square. This is merely propagated for *diversion*; for if the fruit is touched when ripe, it bursts, and throws its *fœtid* contents to some distance, perhaps over the clothes of the adventurer, and perfumes him.

OBSERVATIONS ON PARTICULAR FLOWERS.

Amaranthus, the *tree* sort, grows larger than the others, and bears purple flowers. The *tricolor* and *bicolor* are so called, from the former having the *leaves* of three colours; i. e. a bright red, yellow and green; and the latter of two, a deep red and purple; and it is for these, and not the flower, that they are cultivated. The flowers of the *globe* sorts have the peculiar property of retaining their form and colour a long time (years) when gathered. Clear the seed of this flower from its

downy covering before sowing, as a means of forwarding the germination.

Balsam, when double, and well marked, is a very fine flower. The plain coloured red and white, semi-double and single ones, are not of much account with the curious, but may be put out in ordinary borders to make a shew. The seed of this flower should be nicely saved from the fullest blossomed, and distinctly striped sorts, that have not grown near small, or self-coloured ones. The plants selected for seed, should be protected from the wet and cold, after *Mid-August*, by putting them under lights, or in a green-house window, where they may have the full sun.

Calceolaria, the flower of, is esteemed only for the curiosity of its slipper shape. The blow may be continued all summer, by planting cuttings.

Capficums are usually ranked in the less tender class, and though they are in nature so, yet to have them fine, and to fruit in time, they should be brought forward, by being treated as balsams, &c. at least in situations far north of London. They are grown for the beauty and use of their pods, which are variously shaped, as long, heart, cherry, &c. See p. 248.

Cleome is a very tender annual, (has been long considered as a stove plant). but may come under the cultivation of the ordinary florist, by continuing it longer in a frame, as suppose to *Mid-July*, or later, if the season is then unkind; and then plunging the pots in a warm border. When autumn approaches, a hand-glass may be set on forked sticks over this, or any tender plant, and thus preserve it longer.

Colutea is a perennial shrub of somewhat tender nature, that hardly succeeds abroad. Though the seed will come up on cold ground in high spring, yet by sowing it as one of this class, it may be brought forward enough to produce its beautiful flowers the same autumn. See lists IV. and X. In this last list it is considered as a *biennial*, as it may be housed the first winter,

winter, and turned out into open ground the following summer, and suffered to die.

Egg plant must have a dry soil, and warm situation, but yet plenty of water in hot weather. The blossom is not striking, but the fruit is often as large as a swan's egg, and with common management will be as big as a hen's. This plant requires, however, to be sown forward, and should be brought on by a third hot-bed, if it might be.

Humble plant is one of the *sensitives*, the property of which is to close its leaves, or drop them upon being touched. The common sensitive plant will grow to eight feet, in a *hot-house*, (which is its proper place) but the humble plant is spreading, and seldom reaches more than a stature of two feet; for its lower growth it is therefore more proper for our purpose here. It is called *bumble* from its receding and dropping so completely when touched, ~~foot-stalks and all~~, as if making a bow. The humble plants are distinguished from the common upright growing sensitives, as the latter only closes the leaf, without dropping the stalk.

Ice plant trails and spreads wide on the ground, makes no shew in its flower, but is beautifully covered with crystal drops, shining like *diamonds* when the sun is on it; or as the frozen drops of *icicles*. It is not nice in its culture, or weather, though it should not be put out too young. The best way is to plant one in a pot of six or seven inches diameter, without any thing at bottom over the hole; and keeping it in the frame till it gets too big for the pot, plunge it in the ground a little over the rims. Thus the plant will not be too luxuriant, but yet sufficiently nourished, (for it has small roots) and will flower sooner, and ripen the seed better for this treatment.

Indian shot must be sown forward, and brought on by different hot-beds to blow the *same* year, being rather a tender hot-house perennial.

* * * * *

VIII.

LESS TENDER ANNUALS.

- 3 *Alkekengi*, or winter cherry, angular and downy
- 3 *Amaranthus*, trailing, or pendulous flowered, red
- 3 ——— bloody leaved, with erect flowers, purple
- 3 ——— upright, reddish purple flowered
- 3 *Aster*, *China*, doub. wh. red, pur. brown, striped, &c.
- 2 *Balsam*, yellow, *noli me tangere*, or touch me not
- 2 *Basil*, common sweet, red and purple flowered
- 1 ——— dwarf, or bush Basil, a variety in leaf. See p. 247
- Capsicum*, see the last list, and pages 248
- 2 *Carthamus*, or common bastard saffron, yellow
- 2 ——— woolly, or distaff flower, yellow
- 2 *Cerinth*, or honeywort, great and small, pur. and yel.
- 4 *Chrysanthemum*, doub. wh. and yel. plain and quilled
- 4 *Convolvulus major*, pink, purp. and deep purple
- 1 *Geranium*, African trailing, variegated flower
- 4 *Hollyhock*, *Chinese*, single and double variegated
- 2 *Jacoea*, purple, red, and white flowered
- 1 *India*, or *Chinese pink*, sing. and doub. striped variously
- 4 *Indian corn*, dwarf, red, yel. wh. and variegated
- Love-apple*, or *tomatum*, see page 259
- Love lies bleeding*, see *amaranthus trailing*
- 1 *Mignonette*, see observation, next list
- 4 *Marigold*. *African*, pale and deep yel. pl. and quilled
- 3 ——— *French*, yellow and crimson striped, velvety
- 2 ——— dwarf sorts of both *African* and *French*
- 4 *Marvel of Peru*, white, yel. red, purp. and variegated
- Nasturtium*, yel. and orange flow. July, see p. 253
- 1 *Nolana*, Peruvian dwarf, a trailer, blue flower
- 4 *Palma Christi*, large and small, a variety in stalk
- Persicaria*, see next list
- 2 *Poppy*, Mexican, or prickly poppy, yellow flower
- Princes Feather*, see *amaranthus upright*
- Scabious*, sometimes made an annual, see *biennials*
- 2 *Stock*, com. ten week, red, scarlet, purple and white
- 1 ——— dwarf *French* fine scarlet, and ditto
- 2 ——— *Prussian*, or wall-flower leaved, ditto

- 2 *Sweet sultan*, yellow, purple, red and white flowered
- 4 *Tobacco*, common broad and narrow leaved Virginian
- 3 *Xeranthemum*, or eternal flower, wh. violet and purp.
- 3 *Zinnia*, yellow few flowered, and red many flowered

* * The seeds of most of these flowers will come up in cold ground, (if not sown too early) but are forwarded by a little heat, so as to have them much earlier, and a finer blow, producing seed, which late plants will not. The sorts that most require a little heat are, *after*, *basil*, *geranium*, *love-apple*, *marvel of Peru*, *palma Christi*, *yellow sultan*, and *zinnia*.

The *gourd* may be added to this class; but to succeed well, it should have a good south wall to be trained against, and it will take up a good deal of room there. Sorts numerous, as to size, shape and colour. The common *pumpion* (see page 237) is the hardiest; and the warted *wange gourd* is the prettiest.

OBSERVATIONS ON PARTICULAR FLOWERS.

After, to come forward and fine, should have a second slight hot-bed to prick a few out upon, and indeed this would be a great advantage to any of the other sorts. Those not thus forwarded, will make a second blow. The *striped* sorts are much the prettiest, yet the plain ones make a good shew, and do very well for shrubberies, &c. particularly the *superb* white and red. It is a good way to plant a few *asters*, or any flowers designed for seed, in beds by themselves, in a way of nursery, as in the best borders it is much neater to have all decaying flowers pulled off regularly, as soon as their beauty is over: Pull up all bad flowers (as soon as ever they are discovered) from amongst such seedling plants.

Balsam, yellow, or *touch-me-not*, is more frequently sown in cold ground, (as others of this list, *carthamus*, *cerinthe*, *Mexican poppy*, *princes feather*, and *xeranthemum*) but it is worth while to afford the assistance of a little heat. This flower is sufficiently ornamental to

merit a place in the garden ; but is chiefly curious for the elastic property of its seed pods bursting with force, when just pressed between the fingers, throwing the seeds to a distance.

Chinese hollyhock should be brought forward (especially northwards) to ensure a timely blow. See p. 280.

Chrysanthemum, to preserve some of the finest doubles, plant cuttings, or slips, the beginning of September, in pots, and house them before November, lest the frost come ; and they will generally survive the winter, and flower much earlier, though not so strong as those sown in spring.

Convolvulus major will need support by a wall, stake, or otherwise, to be trailed, or run up, as a scarlet bean. The deep blue sort is called *convolvulus nil*, or *anil*. The major convolvulus makes a good shew, and may be sown in April, in the places designed to flower ; but it is the best way to sow three or four seeds in a small pot, which being placed on a gentle heat, will be much forwarder and finer, and may be turned out whole (when about three inches high) into open ground ; for this flower (as many other annuals) does not transplant well : *Nil* will not do without heat to bring it up.

India pink is now brought to blow much more double and variegated than formerly, and it is a very neat, engaging flower, lasting a long time. Prick the plants out when quite small, (for they readily strike) that they may not be drawn up weak, and let them grow in single detached plants, in a dry light soil, and they will be strong. If cut down as soon as the principal blow is over, they will stand another year.

Marigold, the *African*, grows strongly erect. There is a variety in the form of the flower, and the quilled sorts are mostly admired. The *French* sort grows weakly spreading, but there are beautiful varieties of it from seed, which should be carefully saved from the most double flowers, having had no single ones growing near

near them. The smell of these flowers is unpleasant ; There are sweet-scented sorts of each.

Marvèl of Peru is considered as an annual, yet is naturally perennial in root—as our climate makes it annual. If the roots of those growing abroad are taken up in *October*, and dried a few days, they may be packed in dry sand, and kept in a dry place (from frost) till spring ; when potted and placed on a gentle heat, they will shoot, and come forward.

Palma Christi, the large leaved (often a foot broad) will grow from seven to ten feet high, according to culture, as early sown, &c. As it is valued for its noble stature, and ample foliage, some gardeners bring it forward as a tender annual, in order to produce a giant ; but it is not adviseable. The small leaved grows to about four feet high, and is an agreeable plant in the leaf, in other respects than size.

Nasturtium is impatient of frost ; hence it has been considered in this class, to have it flower early. Late sown plants, if potted and housed, will blow in winter, and live round to spring. Cuttings of it will grow. The dwarf sort is preferred by some for flower borders, but is not so floriferous as the large. There is a double kind, see page 254.

Stock, ten week, (beautiful and fragrant) is the most important annual flower we have. Every one admires it, and its absence is always felt. It therefore merits every attention, to raise fine double flowers, to have them early, a continued succession, and as late in the season as possible.

There should be four sowings of this flower in the year. Let the first be early in the spring, (as *Mid-February*, or beginning of *March*) on a gentle heat ; and being soon thinned a little, they should be pricked out in about a fortnight upon another moderate hot-bed, at four inches asunder, where they may grow till this distance is thought too crowding ; but the best rule is, to give them their final station as soon as they have acquired eight leaves.

The *second* sowing should take place on a little heat, when the first plants are pricked out; and let this sowing be presently thinned to an inch asunder; prick the plants out in the full ground, (or on a moderate hot-bed, if you wish to forward them) at six inches asunder. Here they may grow till either put out with eight leaves, or stand till their *flower buds* appear, which shew plainly whether they will be double or single; the double having full buds, and the single lank ones. But if every other is drawn with eight leaves, the rest will do the better, and may be taken up with large balls of earth; concerning the method of doing which, see page 279. Or, every other being taken up from the bed, the rest may remain to make a grand shew in flower. All the single ones not wanted for *seed*, should be pulled, or cut up; then those left for the purpose will more certainly produce good seed, i. e. apt to come double.

The *third* sowing is to be upon cold ground, in a warm border, or rather under a hand-glass, the beginning of *May*. Let the plants be thinned in time, so as not to draw one another up weak, and pricked out at four inches, as soon as may be, as to showery weather, for stocks will safely transplant very young; and when they have eight leaves, let them be planted where they are to blow. It is a good way (in furnishing borders) to plant three or four stocks together, at four or five inches from one another, and those that prove single, may be cut out as soon as discovered.

The *fourth* sowing is designed for plants to be preserved through the winter for a *spring* blow, and should be made either the last week in *July*, or before the middle of *August*. Plant some close under a south wall, and pot others for housing in (only) severe weather. If two or three plants are put in a pot, the single may be cut away from the double as soon as discovered.

The *French* stock is very floriferous, and most apt to come double. The *Prussian* is sometimes called the
sea-

sea-green stock, to distinguish it from the others, which are somewhat hoary leaved.

To save *seed* that is most promising for double, mark those flowers which have five or six leaves, by tying a bit of thread round them. A single flowering plant that has double ones growing near it, produces good seed; but those single flowers that come out *before* the double ones appear, it is proper to take off, as also all the *late* flowers, which if they ripen their seeds at all, would be weak; and a plant having but few pods to ripen, will certainly produce the boldest seed, and of course the largest plants and flowers may be expected from it. Be sure that the seed is *ripe* before gathered, and that it is kept *dry*, in their pods, close tied in paper bags.

Sultan, the yellow is the finest flower, and has a very agreeable musky scent; but it is the tenderest, and will hardly do well without the assistance of heat to bring the seeds up: It will come, however, if sown under a small hand-glass, that is air tight, on a warm border. The yellow produces much finer flowers, if pricked out upon a second slight hot-bed.

Zinnia, the colours of this flower are dingy, but yet agreeable. Some gardeners chuse to treat it as the balsam; but a moderate hot-bed will produce the plants large and forward enough to ripen their seeds. *Zinnia* is, however, rather more impatient of cold than others of this class.

* * * * *

IX.

HARDY ANNUALS.

2 *Adonis*, pheasant's eye, or bird's eye, red and yellow

1 *Amethystea*, the flower is a pretty amethyst blue one

1 *Alysson*, sweet-scented, white flowering

2 *Balm*, Moldavian, blue and red flowered

Balsam, yellow, see last list, and observation

2 *Belvidera*

- 2 *Belvidere*, annual, summer, or *mock cypress*
- 2 *Borage*, variegated leaved, purp. and red, see page 247
- 1 *Campion*, dwarf viscous, or *dwarf lychnis*, purple
- 1 *Candy-tuft*, common white, red, crimson, and purple
- 1 ——— bitter, and sweet scented white
- 1 *Caterpillar Plant*, four sorts, yellow, see page 272
- 2 *Catchfly*, *Lobel's*, red, purple, and white
- Cerintbe*, or honey-wort, see last list
- 2 *Clary*, annual pink, purple, and white topped
- 1 *Convolvulus minor*, blue, white, and striped
- 4 *Cyanus*, or corn-bottles, blue, red, pur. wh. and strip.
- Devil-in-a-Bush*, or *Fennel Flower*, see *nigella*
- 1 *Geranium*, annual red musk, and a showy blue and pur.
- 1 *Erigeron*, or Canada flea wort, white
- 2 *Hawkweed*, (bastard) red, pale, and a deep yellow
- 1 *Heart's Ease*, or pansy, large Dutch, &c. a variety
- 4 *Indian corn*, dwarf, or *maize*, yellow flow. red fruit
- 2 *Ketmia*, bladder, or flower of an hour, yellow
- 4 *Larkspur*, tall unbranched, branching, and rocket
- 2 ——— dwarf rocket, as of ditto, a variety
- 3 ——— Neapolitan, branched and spotted
- 2 *Lathyrus*, joint-podded, blue flowered
- 3 *Lavatera*, or cretan mallow, red, white, and purple
- 2 ——— three month's Syrian, pale red flower
- 1 *Lupine*, sweet-scented, yellow flowered
- 3 ——— common, two blue sorts, and a white
- 4 ——— hairy giant blue, and rose coloured
- scarlet, see *pea*, *Tangier*
- Lychnis*, dwarf annual, see *campion*
- 4 *Mallow*, curled leaved Syrian, and Chinese, pink
- Venetian, see *ketmia*
- Cretan and a Syrian, see *lavatera*
- 3 *Marigold*, giant, or large common double
- 2 ——— large cape, hybrid, or mongrel
- 1 ——— dwarf cape, leafy, and naked stalked
- 1 *Mignonette*, (trailing) or sweet-scented reseda
- 3 *Mulberry blight*, or strawberry spinach, red fruit
- 1 ——— dwarf plain, and variegated leaved
- Nasturtium*, see observation, last list
- 2 *Nigella*, blue, white, and yellow, single and double
- Normandy tuft*; i. e. red *candy tuft*, which see
- 4 *Pea*, sweet, purple, scarlet, white and black

- 4 *Pea*, pink and white, or the painted lady
 4 ——— *Tangier*, sometimes called *scarlet lupine*
 2 ——— blue flowered, or cultivated *lathyrus*
 4 ——— crown, rose, or cape-horn, pink and white
 1 ——— winged, or winged podded *lotus*, red flower
 4 *Perficaria*, oriental, red flowered, see pages 273, 281
 4 *Poppy*, tall, double purple, scarlet, carnation, &c.
 2 ——— dwarf, or corn poppy, double, a variety
 2 ——— prickly Mexican, or yellow flowered
 3 ——— *chelidonium*, or horned scarlet poppy
 Scabious, see next list, and the observation
 1 *Snails*, hedge hogs, and horns, yellow, see page 272
 2 *Snap-dragon*, annual Sicilian, white flowered
 1 *Stock*, dwarf annual, or Virginian red and white
 4 *Sun-flower*, large double, pale, and full yellow
 3 ——— dwarf double ditto
 2 *Toad-flax*, or three leaved *antirrhinum*, yel. blue, &c.
 1 *Whitlow grass*, white, and yellow flowered
 1 *Venus's looking glass*, blue, white, and purple
 1 ——— navel wort, common, and Portugal, white
 Xeranthemum, or eternal flower, see last list

* * There will not need many observations on the flowers of this class. Directions respecting their cultivation will be found in the last section. It was there said, that *May* was not too late for sowing those annuals that come quick into flower:—the season may be extended (for late blows) to some, through *June*, or even the beginning of *July*, as *annual stock*, *candy tuft*, *convolvulus minor*, *corn bottles*, *heart's ease*, *yellow lupine*, *mignonette*, *sweet-pea*, and *pheasant's eye*. But, if dry weather, the seeds must be watered to bring them up, and the plants also to bring them forward.

OBSERVATIONS ON PARTICULAR FLOWERS.

Belvidere is admired for its beautiful regular growth: The autumn sown seed make far the finest plants, and as self-sown ones often come up, they should be preserved. This flower is adapted for potting, and thus it looks well. See pages 273, 281.

Ketmia, the flower fades in a very short time, when the sun is out; but the plant produces a great number, in long succession.

Larkspur is seldom permitted to attain its utmost perfection, not allowing it room enough. The large sorts *should* be from a foot to eighteen inches asunder, and the dwarf half this distance. See page 282. Pull up all singles. See page 59.

Mignonette is somewhat tender, and is often sown on heat, early in the spring, to obtain forward plants, for pricking out into pots, boxes, or baskets, to be housed in windows, &c. As it does not transplant well, take it up with a little earth about the roots; and, if convenient, put the pots, &c. on a little heat, till rooted. Summer sown plants, if housed in winter, become *Biennial*; cut them down first.

Mulberry blight, or more properly *blite*; i. e. the herb *blitum*, whose fruit resembles a red unripe mulberry. It is also called *strawberry spinach*, from the leaves being like those of the prickly *spinach*, and the fruit like a scarlet *strawberry*. The plant must be supported by a wall, pales, or sticks, or the weight of the fruit (not eatable) will bring them to the ground. It looks best, and is very handsome, when trained, which it should be, just as a fruit tree, suffering no side shoots to remain on. The seed is near a month coming up, which makes autumn sown plants valuable, in order to have the fruit forward and fine. Some persons sow it in spring upon a slight hot-bed, and prick the plants out where they are to grow; but to sow forward, in their proper place, (not to be transplanted) generally does very well; as it will then decorate the autumn, when other things begin to fail.

Stock, annual, if sown about *Mid-August*, for an edging, or in little patches, will make a pretty early spring blow, as it is very hardy: A light soil suits it best. This little flower is commonly spoiled by being suffered to grow thick, which makes it trail, and ram-

ble

ble too much. Four in a patch, about four inches asunder, is sufficient.

* * * * *

X.

LIST of biennial flowers.

- 2 *Campion, rose*, red, wh. and str. and doub. crimf. July
- 2 ——— *Spanish viscous*, red flowers, July
- 2 ——— *Portugal*, whitish green flowered, ditto, July
- 2 *Canterbury bells*, blue, purple and white flow. June
- 2 ——— variegated, and double flow. June
- 2 *Carnation*, (or gilliflower) a great variety, see observ.
- 2 *Chelone*, forking, penciled, American, purple, Sept.
- 2 *Clary*, garden, a variety in leaf, pur. see p. 249, June
- 2 *Colutea*, see *sena*, bladder, below
- 3 *Goat's Beard*, greater yellow flowered, July
- 3 *Honeysuckle, French*, red, wh. and str. flow. June, *d.*
- 3 *Honesty*, satin-flower, or moon-wort, pur. and wh. May
- 2 *Lion's tail*, Virginian, or monarda punctata, yel. July
- 4 *Mallow, tree*, (proving sometimes biennial) pur. June, *d.*
- 2 ——— vervain, ditto, red, and white, June, *d.*
- 2 *Milk veich*, fox-tail, (often biennial) yellow, *f.* June, *d.*
- 4 *Mullein*, branching, phlomoide and sinuated, yel. June
- 2 *Penstemon*, (a biennial-perennial) violet and pl. *f.* Sept.
- 2 *Poppy*, common, horned podded, yellow flower, July
- 4 *Primrose, tree*, com. hairy and smooth-stem'd, yel. June
- 2 *Rampion*, (see p. 255) a large blue bell flow. June
- 4 *Rudbeckia*, three lobed Virginian, yel. flow. July, *d.*
- 3 *Scabious*, pur. black, red, wh. and strip. flow. June
- 3 ——— hen and chicken flowered, purple, June
- 3 ——— starry, Spanish and Montpelier, purple, July
- 4 *Sena, bladder*, (colutea) Ethiopian scarlet, August
- 2 *Snap-dragon*, red, pur. wh. yel. and variegated, June
- 2 ——— red, &c. with variegated leaves, June, *d.*
- 3 *Stock*, Brompton, scarlet, blush, and white, May
- 3 ——— queen, red, blush, and white, May
- 3 ——— Twickenham, purple flowered, May
- 3 ——— shrubby, white, tinged and spotted, May
- 4 ——— large red Dutch, and Patagonian, May

- 2 *Sweet William*, single and double, a variety, June
 2 ————— mule, or fw. Wil. pink, doub. red, June
 2 ————— broad-leaved strip. and red flow. June
 2 *Wall-flower*, large, yel. and bloody, sing. and double
 1 ————— white, and dw. yel. sing. and double, May
 2 ————— winter and early spring, single yellow

* * Several *biennial flowers*, if sown early, or brought forward upon a little heat, will blow the same year, only later, as *French honeysuckle*, *honesty*, *scabious*, *fenna*, and *stocks*; but it is not generally desirable to attempt this, as they do not come so fine and strong, when made annuals of. Those just named, of course, though sown late the preceding year, will blow the next; but some of the biennials, in this case, will not blow the next year, as *Canterbury Bells*, a few of which, though sown at their proper season, may stand over for the second year.

OBSERVATIONS ON PARTICULAR FLOWERS.

Campion, though a perennial, should be considered as biennial, in order to a timely supply; it sometimes is of no longer duration. The *double* (as bearing no seed) is propagated by *slips* from the roots; and it is a very fine Flower. Pot some.

Carnation is seldom considered as a *biennial*, though in fact it is so, as much as several others, usually denominated of this class; for, after the first blow, the plants become straggling, and flower weakly; it is, therefore, that they are always *layered*, &c. to continue them. The plain, deep red, or *clove* scented carnation, is the original, and an established cultivated sort. The rest are classed under the heads, *flakes*, *bizarres*, *picquettees*, and *painted ladies*, according to their colours, stripes, spots, and pouncings. For *layering*, and *raising* carnations, see the end of this section.

Chelone, the seed of this flower is best sown as soon as ripe, in autumn; and coming up in the spring, they may

may be planted in the borders, in *June* and *July*, and will flower the same season.

Goat's Beard, the young shoots are eat (as those of *Asparagus*) like asparagus at spring.

Primrose tree, produces so immense a quantity of seed, that it becomes rather a troublesome weed to some people. Cut the flower stems off, or pull up the plant, before the seed pods are ripe enough to shed their numerous contents.

Rudbeckia, or American sun-flower, this biennial sort is called hardy, but should nevertheless have a dry sheltered situation. The narrow leaved dwarf *perennial* (about three feet) sometimes proves *biennial*, and may be sown as such, a little every year, by those who would extend their work in the culture of flowers.

Scabious has been noticed in the two last lists as an *annual*, which it becomes, if sown early; and some gardeners make a point of doing it on a little heat to forward them. As a *biennial*, it should not be sown too soon; but if forward plants are transplanted in *June*, it will prevent their flowering till next year, when they will come very fine and strong, and this is the way to produce good seed.

Sena, bladder, or *colutea*, Ethiopian scarlet, is rather tender, and the seedling plants must be potted and housed, or sheltered by a frame from sharp frosts. This flower is properly a *perennial*, (see list IV.) but as it is apt to be cut off in severe weather, it is here considered as *biennial*, and may take its chance after the first flowering. It is sometimes made an *annual* of. See *colutea*, list VII.

Snap-dragon we consider as *biennial*, it not blowing so handsome afterwards. The variegated (as all stripes are) is tenderish; this must be propagated from cuttings, as indeed the plain may be, though the finest plants come from seed. This flower is of longest continuance in a poor soil, and will grow and flourish out of cracks in old walls.

Stock,

Stock, or stock gilliflower, is apt to get too rampant (in some seasons) before winter, and when killed by frost, it is chiefly owing to this circumstance; for no thing stands severe weather well, that has grown very freely. Hence it used to be the custom of florists to transplant them several times in the summer; (even a every full moon) but to keep them down, and hardy by this means, tends directly to weaken the blow, is not to kill the plant. The most reasonable method in this business is, not to sow too early, (or before the first week in April) to thin them, and to prick them out in time, that they may not be drawn up long legged; and by no means to let them have a dungy soil to grow in, or a very rich one. Prick them out the first cool weather after they have six leaves, at six or eight inches asunder, where let them remain till August, choosing a showery time, (rather about the middle) to plant them out where they are to blow but let not this be into a moist soil, or damp situation. It is a good way to mix half sand in the mould that lies about the shanks above the roots; and when we and frost comes, to lay coarse, or drift sand, round about them, three or four inches high, which remove at spring. Some of the weakest plants may remain in the nursery bed till spring, which put out in cool ground for in such a soil they blow best, though they do not stand the winter well in it: Stocks blow much finer in a showery summer than in a hot one. It will be a great advantage to those moved at spring, to have balls of earth to the roots, though they do not well retain it. To dispose them to it, and make them fitter to transplant, they may be cut round in autumn, with a long knife, five or six inches deep, and about three inches from the stem, making one slanting cut under the root, at six inches depth, to cut those asunder that strike directly down. This is a practice that would answer in most things that are to be removed at spring and if not, it would generally be of service, as the cut

tin

ing off the end of a downright root, occasions it to throw out several others of a more fibrous nature.

Sweet William (or bearded pink) is distinguished into broad and narrow leaved sorts. This flower comes very diversified from seed, many plain, others beautifully striped, and a few double, perhaps one in thirty or forty. But the single ones are generally so ornamental, that the want of doubles is not much lamented. The *double* sorts are propagated from *layers*, as carnations. The *sweet William* is perennial, but as the plants cease to be handsome (and in some cases die) after the first blow, it is necessary to raise some every year for ordinary use.

Wall-flowers, raised from seed, produce some doubles; but the chance is not great for fine ones, which are to be continued from slips or cuttings in *May, June, or July*: plant them in a rich soil, and shade till rooted. The double *white* wall-flower is tender, and should be protected for housing, as indeed other good sorts of this flower should be, and generally are.

* * * * *

XI.

LIST of fibrous rooted perennial flowers.

- 2 *Adonis*, or perennial pheasant's eye, yel. r. f. Aug. m.
- 3 *Acanthus*, smooth and prickly wh. and pink, f. r. July, d.
- 3 *Agrimony*, the large, or odoriferous yellow, f. r. July
- 3 ——— hemp, common wild, red, f. r. August, m.
- 2 ——— spotted stalked American, purple, ditto
- 3 ——— lower Pennsylvanian and Virginian, wh. ditto
- 4 ——— Canada, or tall purple flower, ditto
- 4 ——— tallest Pennsylvanian, white flowered, ditto
- 1 *Alyssou*, rock, Cretan, and prickly, yel. and wh. f. r. May
- 1 *Anthemis*, or sea camomile, a trailer, white, f. July
- 3 ——— ox eye sort, yellow, white and red, r. June
- 1 *Anthyllis*, double, pur. and scar. trailing, f. r. June

4 *Arum*

- 4 *Arum*, dragon, common spotted stalked, purple, *r.* June
 1 *Asarabacca*, Virginian vein leaved, &c. purp. *r.* May
Asphodel, or king's spear. See the next list.
Aster, a variety, see *starwort* below.
 1 *Auricula*, or bear's ear, see *observation* end of list.
 1 *Avens*, com. alp. yel. and marsh, pur. &c. *f. r.* May, *m.*
 3 *Bachelor's button*, sing. and doub. red and wh. *f. r.* May
 blue, see *cyanus*
 1 *Balm*, grandiflorus, purple, red and white, *r.* June
 1 *Barrenwort*, alpine (*epimedium*) red, *r.* May, *shade*
Bear's breech, see *acanthus*
 1 *Bear's ear sanicle*, of Matthioli, fine red, *r.* June, *d.*
 1 *Bear's foot*, or hellebore, greenish flower, *f. r.* Feb.
 2 *Betony*, com. Danish, oriental, pur. red, wh. *f. r.* July, *m.*
 4 *Bee larkspur*, common, and great flow. blue, *f. r.* July
 2 *Bloodwort*, or bloody stalked dock, white, *f.* May
 2 *Borage*, oriental perennial, blue flower, *f. r.* May, *d.*
 1 *Bugle*, com. pyramidal blue, red and wh. *r.* May, *m.*
 2 *Bugloss*, com. (see p. 253) blue, wh. and red. *f.* June
 1 ——— oriental trailing, and Virginian, yel. *f.* May, *d.*
 2 *Burnet*, com. (253) and agrimony leav. red, *f. r.* June
 4 *Bryony*, common white flowered, red berried, *f.* May
 2 *Cacalia*, alpine purple, a variety in leaf, *f. r.* June
Calamint, Hetrurian, see *balm grandiflorus*
 4 *Campanula*, pyramidal, or iteeple flow. blue, *f. fl.* Aug.
 1 ——— grandiflora, and Carpathian, purp. *f. r.* July
 — see *Throatwort*. *Campion*, see last list.
 1 *Candy Tuft*, round leaved perennial, wh. *r. c.* June
 3 *Cardinal flower*, scarlet, blue and violet, *f. r. c.* Aug. *d.*
Carnation, is properly a *biennial*. See the last list.
 2 *Catchfly*, or viscous *campion*, doub. red and wh. *r.* June
 4 *Centaury*, great pur. and woad leaved yel. *f. r.* June
 2 *Chelone*, Virginian, &c. wh. blue, red and pur. *r.* Sep.
 4 *Chervil*, perennial, or *sweet fern*, white, *f.* June
 1 *Christmas rose*, or black hellebore, white, *r.* January
 4 *Clary*, Indian blue, and glutinous yellow, *f. r.* June
 3 *Columbine*, com. plain, striped and spotted, *f. r.* June
 3 ——— feathered, (*thalictrum*) wh. and pur. ditto
 2 ——— mountain, or alpine, large blue, *f. r.* May
 1 ——— Canada dwarf early, red with yel. *f. r.* Ap.
Cookoo flower, or meadow pink, see *ragged robin*

- 4 *Coreopsis*, verticillate, yellow, a long blow, *r.* July
 1 *Cowslip*, double yellow, and double scarlet, *r.* May
 1 ——— American, or *Meadia*, purple, *f. off.* May
 2 *Crowfoot*, meadow, double yellow flowered, *r.* May
 1 ——— mountain, double white flowered, *r.* May
 2 *Cyanus*, mountain, or perennial blue bottle, *f. r.* June
 1 *Daisy*, wh. red, scar. variegated, coxcomb, &c. *r.* April
 1 ——— globe, (*globularia*) a fine blue flower, *r.* June
 3 ——— ox eye, American and Montpelier, wh. *f. r.* July
 ——— Michaelmas, see *starwort* tradescants
 2 *Dodartia*, oriental, deep purple flower, *r.* May
Dodecatheon, see *cowslip* American
 2 *Dog's bane*, willow leaved, purp. and wh. &c. *r.* July
 ——— (Asclepias) Virginia orange, *off.* July
 3 *Dragon's head*, Virginia purple flowered, *f. r.* August
 2 ——— hyssop leaved, blue flowered, *f.* June
 3 *Eryngo*, or sea holly, Amethystine, and Russian, *f.* July
 2 ——— maritime English, and aquatic American, ditto
 2 *Eternal flower*, pearly, or white everlasting, *r.* June
 3 *Feverfew*, two doub. fl. and a curled leav. wh. *f. r. c.* June
 4 *Figwort*, Spanish, elder leaved, red and gr. *f. r. fl. c.* July
 4 ——— aquatic variegated leaved, ditto
 4 *Flax*, perennial Siberian blue flowered, *f.* June
 3 *Fox-glove*, pur. red, wh. and iron coloured, *f. r.* June
 2 ——— great and less yel. and Spanish purp. ditto
 ——— American, see *monkey flower*
 3 *Fraxinella*, white and purple flowered, *f. r.* June
 3 *French honeysuckle*, Canadian, red, wh. pur. *f.* June, *d.*
 3 ——— sensitive, branched, yellow, ditto
 1 *Fumatory*, diffused branching, yel. and wh. *f.* June
 2 ——— upright American, purple, ditto
 3 *Gentian*, great yellow, and purple flowering, *f.* July
 1 ——— asclepias leav. and cross-wort, blue, *f. r.* May
 1 *Gentianella*, fine axure blue flower, *f. r.* May
 1 *Geranium*, (*English*) blue, pur. red, black, *r.* May
 ——— African, or tender sorts, see *observation*
 2 *Globe flower*, European, and Asiatic, yel. *f. r.* May, *m.*
 4 *Globe thistle*, great blue, and white flowered, *f.* June
 2 ——— less, deep blue, and white flowered, ditto
 3 *Golden Rod*, common Mexican and American, *r.* August
 ——— tall late blowing American, *r.* September

Golden

- 1 *Milkwort*, com. and bitter, blue, red, wh. &c. *f.* June, *d.*
 2 *Milk wetch*, goat's rue-leaved, and oriental, *yel. f.* July
 3 ——— (Anthyllis Montana) purple, trailing, *f.* July
 4 *Monkey flower*, or American fox glove, blue, *r. f.* July
 5 *Morina*, pur wh. pale and deep red, *f. eff.* June
 6 *Mugwort*, silv. str. and gold str. pur. *r.* June
 7 *Mullein*, yellow, purple and iron coloured, *r. f.* June
 8 ——— myconic borage leaved, trailing, blue, ditto
 9 *Navelwort*, perennial trailing, blue flowered, *r. c.* April
 10 *Orchis*, biennial, see next list
 11 *Orobis*, see *wetch*, bitter
 12 *Orpine*, the greater, purple and white, *fl. c.* July, *d.*
 13 ——— the lesser, (anacampseros) a trailer, pur. ditto
 14 ——— true, (telephium) white flowered, *f. r. fl. c.* July
 15 *Ox-eye-daisy*, American and Motpelier, white, *r.* July
 16 ——— corymbus flowering, white, ditto
 17 *Posque flower*, see next list
 18 *Passion flower*, com. palmated blue rayed, *c. l. f. su.* July
 19 *Pea*, everlasting, red, scar. pur. and large fl. *f. r.* June
 20 *Pæony*, being tuberous rooted, see next list
 21 *Pink*, common, red, white, plain and fringed, damask
 22 ——— red cob, white cob, painted lady
 23 ——— maiden, or matted, and grey leaved mountain
 24 ——— pheasant's eye, &c. a great variety
 25 *Plumbago*, or European leadwort, blue, pur. wh. *r.* Oct.
 26 *Polyanthus*, a great variety in flower. *f. r.* April
 27 *Popp*, oriental scarlet, and Welsh yellow, *f. r.* June
 28 *Primrose*, white, red, scarlet, doub. *yel. &c. r.* March
 29 ——— tree, the larger, (perennial) *yel. f. r.* June
 30 *Ragged robin*, or meadow pink, double red, *f. r.* May
 31 *Reed*, Portugal, or Spanish variegated leaved, *eff.*
 32 *Rest barrow*, common purple with red flowers, *f.* May
 33 *Rhubarb*, com. and weaved leaved Chinese, wh. *f.* June
 34 ——— palmated Chinese, and large Tartarian, &c.
 35 *Rocket*, sing. and doub. wh. pur. and red, *f. c. r.* June
 36 ——— double yellow, or double erysimum, *r.* June
 37 *Rudbeckia*, jagged leaved Virginian, orange, *r. f.* July
 38 ——— dwarf hairy, yellow, purple, &c. ditto
 39 *Rush*, sweet flowering. pink, wh. and pur. *r.* July *w.*
 40 *Sanguinaria*, Canada, (puccoon) sing. and doub. wh. *r.*
 41 *Sarracena*, or side-saddle flower, pur. and *yel. f. r.* July

Q

4 Saw-wort,

- 4 *Saw-wort*, New York and Maryland, pur. flow. *r.* June
 3 *Saxifrage*, pyramidal, often called *sedum*, see next list.
 2 ——— spotted hairy, and strawberry, wh. ditto
 1 ——— ladies cushion, a low trailer, wh. *off.* May
 1 ——— golden, two sorts as to leaf, yellow, *r.* July
 ——— double flowered, granulated, see next list
 4 *Scabious*, perennial Alpine, blue flowered, *f. c. r.* July
 2 ——— oriental, silvery, and grass leaved, *f.* July
 3 *Scullcap*, ta lest, or nettle-leaved, purple, *f.* June, *d.*
 2 ——— Alpine, violet, and white flowered, ditto
 2 ——— eastern, germander leaved yellow, ditto
Sea pink, see *lavender* and *thrift*. *Sea Cale*, see p. 241.
 3 *Sena*, wild, or Marilandic, (cassia) *r. f.* July, *d.*
 1 *Sisyrinchium*, Virginian and Bermudian, blue, *r. f.* June
 ——— see *iris*, next list
 2 *Sneezewort*, double flowered white, *r. f.* July, *m.*
 1 ——— hoary yel. and silvery leaved wh. *r. f.* July
 3 *Soapwort*, double flowered, purple, and scarlet, *r.* July
 1 *Soldanella*, purp. blue, wh. and fringed, *r.* March, *m.*
 3 *Solomon's seal*, many flow. sw. scented, &c. *r.* May, *m.*
 3 *Sophora*, oriental, fox-tail-like, blue, *r. f.* July
 4 ——— four-winged-podded, yellow, *r.* June
 1 ——— tinctorious Virginian, trailing, yel. *r. f.* July
Speedwell, see *veronica*
Spider-wort, see next list
 1 *Star-wort*, dwarf alpine, purple flowered, *r. c.* June
 1 ——— dumosus, bushy white flowered, *r. c.* Aug.
 2 ——— sea, or tripolium aster, blue, *r. c.* July
 3 ——— flax leaved blue flowered, *r. c.* August
 4 ——— New England, violet coloured, *r. c.* Sept.
 4 ——— tradescants, a pale blue flower, *r. c.* October
 3 ——— Catesby's pyramidal Virginian, blue, *r. c.* Nov.
 2 ——— Italian, large bright blue flower, *r. c.* Nov.
 1 *Stock*, dwarf shrubby, or window flow. red, *f.* June
 1 *Stone crop*, small and great, trailing, yellow, *c. r.* July
 1 ——— poplar leaved, upright, pinkish, ditto
 4 *San flower*, many flowered, com. double, &c. *r.* July
 3 *Swallow-wort*, common wh. black and yellow, *f. r.* June
 1 *Thrift*, greater and smaller, red, scar. and wh. *N. r.* June
 3 *Throat-wort*, great, double wh. blue and pur. *r.* June
 4 ——— giant, blue, white; red and striped, ditto

- 2 *Throat-wort*, dwarf, small fine blue flower, *f. r.* June
 2 *Toad-flax*, a variety, yel. pur. and wh. *f. c. r.* July
 1 ——— dwarf Alpine purple flowered, ditto
 3 *Valerian*, common red and wh. mountain red, *f. r.* June
 2 ——— Greek, pur. wh. and variegated, *f. r.* May
 4 *Veronica*, a variety, blue, white, and blush, *r. f.* June
 1 ——— dwarf blue and wh. and Welsh blue, ditto
 3 *Vervain*, common, and spear leaved, blue, *f. r.* June
 4 *Vetch*, white wood, tufted blue, *f. r.* July
 3 ——— bitter, (*orobus*) a variety, blue and pur. *f. r.* May
 2 ——— Siberian, unbranching *orobus*, yel. *f. r.* April
 ——— see *orobus*, next list
 1 *Violet*, com. blue, pur. and wh. sing. and doub. *r.* March
 1 ——— Austrian purple, and Censian blue, *r.* April
 1 ——— Alpine, double red, and purple, *r.* March
 1 ——— yellow, and grandiflorus yellow, &c. *r.* April
Wake robin, see *arum*
Willow herb, see *loosestrife*
 1 *Wood sorrel*, common white and purple, *f.* June, *m.*
 1 *Worm Grass*, Maryland, (*spigelia*) red flower, *r.* July
 2 *Yarrow*, or *milfoil*, the purple flowered, August
 ——— see *maudlin* and *sneezewort*

OBSERVATIONS ON PARTICULAR FLOWERS.

Acanthus, or *bear's breech*, is admired for the elegance of its leaf. It spreads wide, and should have room allowed it, in a warm light soil, and sheltered situation; but still rather a shady, than a sunny one.

Alyssons do best in a dry hungry soil, but should have a favourable situation, where they will blow long and prettily.

Avens will grow in any cold moist shady ground.

Auricula, from the great and elegant variety of its flower and leaf, arising perpetually from seed, is one of the florist's chief delights, and to which he pays much attention in the culture. It is one of the first flowers, and ranks in nature with the *primrose* and *anemone*. The sorts admitted in the present collec-

tions, are about four hundred. The *auricula*, the *car-nation*, *tulip*, *hyacinth*, *ranunculus*, *anemone*, &c. are called *fancy flowers*. For the *propagation* and *culture* of the *auricula*, see the end of this section.

Bear's ear fanicle is very hardy, yet being low, is a proper plant to *pot*. It may be planted in any cold place, and should have a dry lean soil, but be duly watered in summer; and most things that a poor soil suits, must still have water freely in warm weather. This fanicle is about six inches high; that of *Gmelin* only four.

Betony, as a native of the woods, is proper to plant in shrubberies, and shady places.

Birth-wort is tender, and seedlings of it must be sheltered by a frame in winter.

Bryony is a climber, and is proper to grow in plantations to run up trees, &c.

Campanula, pyramidal, may be propagated (as well as from seeds and slips) by pieces of its *root*, planted about an inch and half in the ground, in a shady, but not moist border. The finest plants are produced from *seed*; but will be three or four years before they blow. Sow a few every year in *April*, in a light fresh soil, where the morning sun only comes. As much wet in the cold seasons is apt to rot this root, it will be proper to guard against it, by some occasional covering, when there is a continuance of rain, or snow. A few *potted* may be removed under shelter. A mat set *high* over is a proper covering for a bed of them. In the *summer* they must never want water, especially when spindling, or in blow. There is a *white* sort.

Cardinal flower must have a dry soil and a warm situation; occasionally also a little protection. They are commonly potted, and some should at least be so: lest those in the open ground be cut off: This flower is very ornamental, but the scarlet most so.

Christmas rose is very hardy, but a dry warm situation may be allotted it; and when in flower, a little protection

protection to preserve the flowers in beauty, as a *hand-glass* may be adviseable. A plant or two potted (large pots as it spreads) is agreeable enough, at such a season, to house when in blow.

Columbine comes in great variety, and the seed should be well chosen, which, when sown in spring, is rather apt to miss. Autumn is therefore preferable; and these plants will from this sowing be much stronger. The plants should not stand above two years after flowering, as afterwards they get unsightly, and plain.

Cowslip American is commonly potted, as indeed some plants should be, as it thus appears to advantage; but it is hardy, and grows best in borders that are somewhat shady, not having the afternoon sun.

Dragon's head should have a moist shady situation.

Figwort, the plants are somewhat tender, and may be only expected to stand through ordinary winters, in a warm soil and situation. Let some be *potted*, for housing; lest those abroad be cut off.

Fox-gloves do best in a somewhat strong soil, and shady situation, and will be found a useful flower in shrubberies, &c. in all its varieties.

Geranium, (or *crane's bill*, so called from the shape of the seed vessel) the *exotic* sorts are tender, *Africa* being their native climate. As favourite flowers, the different sorts are cultivated by all descriptions of people, as opportunity affords to preserve them in winter. They are properly *green-house* plants. The principal kinds are as follow, classed according to their ordinary height of growth:

1. Flaming, or Vervain mallow leaved, scarlet.—Three coloured; i. e. red, black, and white.—Ladies mantle leaved, whitish and bluish.—Sweet-scented mallow-leaved, white.—Gooseberry-leaved, reddish.—Caraway leaved, or variable geranium, red, crimson, purple, white, &c.—Vine leaved, red and white.—Night-smelling, yellowish with dark spots, three sorts.—Pinnated, or proliferous, of different colours.

2. Spear-leaved, white.—Fleshy stalked, or celandine leaved, white.—Square stalked, flesh coloured.

3. Birch-leaved, reddish.—Sorrel leaved, bluish, plain and striped flowered, and variegated leaved.—Three gouty stalked, or columbine leaved, purple.—Rose-scented, a purplish blue.—Glutinous vine leaved, reddish purple and white.—Horse-shoe, green leaved, variegated, silver edged, silver striped, gold striped, pink, two scarlets and a purple, and one large scarlet, or grandiflorum.

4. Vine-leaved, balm-scented, blue.—Shining, and mallow leaved, scarlet and deep scarlet.—Butterfly, or variegated flowered, with a pointed mallow leaf.—Marsh-mallow, or hood-leaved, purplish; and a variety of this with angular leaves.—Rasp leaved, flesh colour, spotted red.—Two coloured, purple and white. See the end of this section.

Gentianella likes a cool loamy soil, and eastern situation, and should not be often removed, or in too small pieces when it is.

Globe flower, or *globe ranunculus*, is very ornamental. The *European* is sometimes called *locker gowlans*. They both do well in a cool soil, and north border; though the name *Asiatic* seems to direct to a dry soil, and warm situation. The case is, they are natives of moist, shady places; and whenever this is the case, we may conclude such plants are organized accordingly, and that they must be accommodated by us agreeable to their nature. The constitution of plants is necessary to be known, in order to their proper culture; and a gardener cannot direct his attention more to his credit, than to make observations and experiments to discover it.

Golden rod will grow in shade, and particularly the evergreen sort; but being late blowers, this circumstance directs to a snug sheltered situation.

Hellebore, the white flowered, is the common official plant. A light soil and dry situation, not subject to snails, suits it best.

Helonias

Helonias is a very elegant and ornamental plant, worthy of the most conspicuous part of the pleasure garden. It requires only the ordinary culture of perennials. *Seeds* are imported from *America*, as the climate does not ripen them here.

Hepatica is found to transplant best when in flower; but it should never be in small portions, lest it wither away; they never look well in small patches, as is the case with all dwarf blowers. Situation and soil the same as *gentianella*.

Ladies smock, and *ladies slipper*, do best in a moist soil and shade, as in a *north* border, where not many other things do well.

Lily of the valley should have a cool situation, and if not in a moist soil, give it at least an *east* border, or where it has only a little morning sun.

Lion's foot is somewhat tender, and to do well must have a favourable place in the garden, as to sun and shelter; it does best in a light, or sandy soil. Let some be potted, it is pretty, and blows all summer.

London pride (a saxifrage) used to be planted much as an edging; but it does not answer this purpose well. A few plants here and there in patches is best; by no means allow it a good border: It prefers a moist soil and cold situation.

Loosestrife, the common, is found wild; but it is a showy plant, and where a variety is wanted is very admissible. It grows in shady moist places, and should be planted accordingly, in the borders of a shrubbery, &c. The smallest sort is a trailer.

Lupine will be best raised from seed, without transplanting, as the roots strike down deep: If they are transplanted, let it therefore be quite young.

Lungworts prefer a shady situation; but the *Virginian* (an elegant little plant) rather one that is dry and sheltered.

Lychnis, the double scarlet is a beautiful flower, but not apt to encrease much at root; recourse is therefore

to be had to *cuttings*, which also are not certain striking root. In *June*, or *July*, take cuttings from the side shoots, (without flower) and let the piece planted have three, or at the most four eyes. Put them into a good soil, fine and rich, but not dungy as deep as half way between the second and third joint in an *east* border: and keep them cool, but not wet. A *hand-glass* will greatly assist in this business, as in all other like cases. See *pink* at the end of this section. The *Chinese lychnis* is rather too tender for open culture; but in a choice situation may abide moderate winters. It makes a good potted plant among myrtles and geraniums.

Lychnidea, take the cuttings off close to the ground and discharge the tops; and plant them in pots, or borders, in a place not of much sun.

Master-wort (a medicinal plant) is of no great ornament; but is commonly cultivated for borders or shrubberies, &c. as being of low growth, and hardy nature. There is an *alpine* sort about a foot high.

Marsh marigold is a plant (as its name imports) that will flourish in a wet soil; but yet it does not do much amiss in a dry one. In default of a moist soil, any plant that requires one, should at least be accommodated with a shady situation, and never want water in summer.

Milk vetch is somewhat tender, particularly the seedlings, which should be protected by a garden frame in winter. *Fox tail* sort, see *biennials*.

Monkey flower is very ornamental, and of easy culture, not difficult in situation.

Monk's hood is a poisonous plant in every part, but very ornamental, and commonly cultivated. Shade suits it, and it will even grow under trees, or in any damp place, where few other things will.

Morina is worthy of a conspicuous place in the garden. It has a strong tap-root, and should be transplanted whilst young, that it may not be damaged; but

but sowing in the place where it is to grow (as directed for the *lupine*) is the best way.

Mulleins prefer a light soil, but like a north border; and the borage leaved being very low, is proper for an edging in a cool shady situation.

Orpine, this, as all succulent plants, should have a dry soil and situation, and not often watered.

Passion flower should be planted against a warm wall, where it may have room to spread, as it is a very free shooter. The sorts are numerous, (for *green-house* and *stove*) but only this well suits open culture. In fine situations, and the *southern* parts of *England*, there are two more, however, that may do abroad. Prune it about *Michaelmas*, leaving the shoots from two to four feet long, as the strength of the plants, or room, dictates, and a foot asunder. Before the frosts come, cover the roots, a yard round, with dry litter; and renew it with dry, when afterwards it gets much and long wet. The branches also should be covered with a mat (a thin one, and not over close) before *severe* frost sets in; but uncover as soon in spring as may be, or, in short, in mild weather, on *days* through the winter, if not too much trouble. This flower has been sometimes trained to a stake, in which case, shorter pruning must take place to keep it down. It bears upon the young shoots, which should be regularly trained in. The flowers are the glory only of a day, but generally a great number are produced in succession. It takes readily from cuttings, of about seven or eight inches long, cut in *March* or *April*, and planted in a good soil, kept cool by water, and shaded from much sun.

Pink, the sorts are numerous, for *seed* is constantly producing new varieties, occasionally *one* among many that vies with its famed predecessors in beauty, and whose superior excellence is not neglected by the *florist*. He gives it a name as fancy directs, and it is enrolled in the *nurseryman's* catalogue of worthies. The *pink* (as the *carnation* was) might be considered biennially, the good sorts being regularly layered, &c. every year

for increase: They do, however, stand on for older plants, better than carnations. For *propagation*, &c. see the end of this section. There is a pink called the *ever-blooming*.

Polyanthus produces an infinity of sorts from seed, and the *florist* pursues his object of obtaining prize flowers of this kind. The *polyanthus* delights in a loamy soil, and shady situation. It is an excellent edging flower for shrubberies; though fine blows are not to be expected under trees, or in much wet. An *east* border is the place for producing the best flowers. For *raising* them, &c. see the end of this section.

Plumbago, though it be a native of *Italy*, is hardy enough to abide our ordinary winters in the open ground. Afford it a dry, sunny, sheltered situation, which will be a means of preserving it, and also tend to forward the blow, as it is so late: All plants that produce their flowers towards the end of autumn, (however hardy) should have a favourable aspect, as to sun, lest winter overtake them before they can gratify us with their show.

Poppy, allow the *eastern* sort a light dry soil.

Reed, Portugal, is curious for its lofty and ample growth, but rarely flowers with us. It attains to ten or twelve feet high, and its stems are strong enough for walking-sticks. The *variegated* sorts come only to half the size, and more frequently flowers.

Rhubarb, the common serves for show, and the ribs of the leaves for tarts; but the *Chinese* principally, and then the *Tartarian* for medical uses of the root: The *Chinese* is deemed the true officinal rhubarb.

Rocket, (sometimes called *dame's violet*, and *queen's gilliflower*) the single is raised from seed, and the double from rooted slips and cuttings. The double is rather uncertain in continuance, and requires some attention. Cut the stems down as soon as off their principal show of flowering, which is a means to help them to get strong and encrease at root; and it is from *offsets* formed

formed in the present year; that they flower in the next. If weak, or small roots are planted, they should not be suffered to blow the first year. To *propagate* by *cuttings*, do it when the stems are about eight or nine inches long, (i. e. before flowering) making each into two; and plant them a little more than half way deep, in an *east* border, in good fresh undunged soil. Keep them cool by occasional watering, and if the cuttings attempt to flower, be sure to nip the buds off. Cuttings of stems that have flowered, will sometimes grow, but they make weak plants: A *hand-glass* would be of service over them. See *pink* at the end of this section.

Rudbeckia, or *American sun-flower*, is a little tender, and must be accommodated accordingly. Like the *rocket*, it is rather (some sorts at least) unapt to form *offsets*; and therefore to encourage the putting them forth, (without which the plant dies) the stems may be cut down to prevent flowering: That is, when plants are more desired than flowers.

Rush will be proper only for places that are constantly wet, by standing water; and in such a situation they will prove ornamental.

Sarracena is a native of the bogs of *North America*. It requires therefore a moist situation; but is found to need protection from our sharp frosts. The whole plant is of curious formation. It is not apt to ripen its seeds here, or to make offsets; so that both are frequently imported.

Saxifrage plants are usually *potted* to move into the house when in flower, as indeed the *pyramidal* in particular should be; but they are all very hardy, except the *strawberry* sort, (not very handsome) which is too tender to endure much wet and cold.

Senna, of *Maryland*, must have a dry soil and warm situation. It is annual in stalk, and therefore the roots may be well protected in winter: This flower makes a very handsome show.

Solomon's seal is in greater variety, and there is one with double flowers. They all suit well in shady and moist places.

Starworts are in general of that hardy nature, that they will flower almost any where, and increase apace from the least slip. They are apt, however, to lose their lower leaves, in proportion to the shade, cold, and wet, they grow in; and the *Alpine* sort will require an open situation, though, like the others, a stiff moist soil suits it. There are other sorts. The three last, as blowing late, and not rampant, may be planted near the house.

Stock, this plant is rather of a biennial nature, but generally of longer duration. It is proper to *pot* and place in a window, on account of its size, rising only a few inches. It is sweet and floriferous, and altogether very proper for an edging.

Sisyrinchium, allow it an *east* border, but dry soil; and as it is a small flower, *pot* some.

Throatwort, the two first sorts are classed with *campanulas*. The latter, which is the proper, or *mountain blue throatwort*, likes the shade, but must have a light dry soil. This, as the *snap-dragon*, and some others, will grow in the cracks of walls, &c. and continue longer in such a situation, than a better: In moist soils it proves often biennial.

Whitlow grass is a wild (medicinal) herb, that grows on roofs and walls of old houses, and rubbish heaps; but makes a pretty dwarf spring flower as an edging, &c. in a poor soil.

Worm grass is a very neat little plant, with a flower bright red without, and a deep orange within.

* * * * *

XII.

LIST of *bulbous, tuberous, and fleshy-rooted*
perennials.

- 1 *Aconite*, or winter wolf's bane, yellow flower, Feb.
- 2 *Albuca*, or bastard star of Bethlehem, (least) yel. June
- 3 ——— greater, or spear leaved, red flowered, June
- 4 ——— tallest, with spined clusters of wh. flow. June
- 2 *Anemone*, doub. broad and narrow leav. variety, May
- 2 ——— com. wood, doub. wh. pur. blue, red, March
- 2 ——— Appenine wood, doub. blue, pur. wh. April
- 2 ——— yellow wood, or ranunculus anemone, April
- *pulsatilla*, see *pasque flower*
- 3 *Asphodel*, or king's spear, yellow and white, *f. r.* June
- 2 ——— hollow leaved, and dwarf, white, *f. r.* June
- 1 *Bulbocodium*, or mountain saffron, purple, April
- 1 *Colchicum*, com. sing. and doub. pur. pink, wh. &c. Sept.
- 1 ——— variegated flow. and a striped leaved, Sept.
- 1 ——— mountain, (Spanish) red and strip. red, Aug.
- 1 ——— eastern, varieg. leaf, chequered flow. Aug.
- 4 *Comfrey*, oriental, blue (April) and German, yel. June
- 4 *Cornflag*, or sword-lily, crimf. red, pur. and wh. June
- 1 *Crocus*, spring, yellows, a variety, plain and strip. March
- 1 ——— ditto, blues, purples, white, pl. and strip. March
- 1 ——— autumnal, or saffron, pur. blue, wh. yel. Oct.
- 3 *Crowfoot*, Alpine plantain leaved, white, April
- see *crowfoot*, last list
- 3 ——— Pyrenean grass leaved, yellow, May
- 4 *Crown imperial*, sing. and doub. reds and yellows, May
- 4 ——— double crowned, triple crowned, May
- 4 ——— gold, and silver striped leaved, May
- 1 *Cyclamen*, European, spring and autumn, pur. wh. April
- 3 *Daffodil*, a variety of yellows, sing. and doub. April
- 3 ——— double yellow, with cup in cup, April
- 3 ——— yel. with wh. cup; and wh. with yel. cup, April
- 4 ——— tradescants large double yellow, April
- 2 ——— dwarf, or short-stalked yellow, March

Daffodil,

- 1 *Daffodil*, hoop petticoat, or rush-leaved yellow, April
 3 ——— odorous, or sweet-scented starry, yel. April
 ——— white, see *narcissus*
 ——— sea, see *pancratium*
 1 *Dog's-tooth violet*, purples, red and white, April
 1 ——— narrow leaved, colours ditto, April
 4 *Dog's-bane*, (tuberous *asclepias*) orange coloured, July
 2 *Dropwort*, doub. flow. and varieg. leaved, white, June
 3 *Fritillary*, common, and Pyrenean, a variety, April
 1 *Fumatory*, solid, and hollow rooted, red, pur. wh. April
Gladiolus, see *Cornflag*.
 1 *Herb-true-love*, nodding, and sessile flowered, pur. April
 2 *Hyacinth*, a great variety, white, red, blue, &c. May
 3 ——— tufted, (or fair-haired) bl. pur. and wh. April
 1 ——— Spanish nodding flowered, red, April
 3 ——— amethystine, a deep blue colour, March
 3 ——— musk scented, purple and yellow, April
 4 ——— monstrous flowered, or feathered, blue, April
 1 ——— grape sorts, blue, white and grey, April
 2 ——— lily, (yellow rooted) a blue star flow. June
 1 ——— Peruvian starry, blue and white, May
 2 ——— Italian and Byzantine starry, blue, April
 1 ——— English starry, (autumn squill) blue, Sept.
 1 ——— bell flowered starry, white with pur. May
 ——— *Indian tuberos*, see *tuberoſe*
 3 *Jonquil*, single, semi and double yellow, April
 4 *Iris*, or flag, a variety, pur. blue, yel. wh. &c. June
 4 ——— striped leaved stinking gladwin, purple, July
 4 ——— Siberian narrow leaved, blue with white, July
 1 ——— dwarf Austrian, purp. blue, red and white, May
 1 ——— vernal, or dwarf Virginian, blue, May
 3 ——— snake's head, or tuberous iris, purple, May
 3 ——— *Xiphium*, or Spanish bulbous, a variety, June
 1 ——— *Persian* bulbous, finely variegated, March
 1 ——— bulbous *Sisyrinchium*, blue and yellow, June
 1 *Ixia*, large flowered, or crocus leaved, variety, June
 1 ——— Chinese sword leaved, yellow with red, July
 4 *Lily*, com. sing. and doub. wh. orange and fiery, June
 3 ——— striped flowered, purple and white, June
 3 ——— striped leaved, of white and orange sorts, June
 3 ——— dwarf stalked, orange, or red flowered, June

Lily,

- 4 *Lily*, Constantinople, dependent flowered, June
 4 ——— proliferous, or many flowered ditto, June
 4 ——— com. martagon, or Turk's cap, purple, June
 4 ——— ditto, wh. red, imperial and double, June, July
 4 ——— pompony martagons, several colours, June
 4 ——— Chalcedonian martagons, scarlet and purp. July
 4 ——— superb pyramidal martagon, variegated, July
 4 ——— Canadian martagon, plain, and spotted yel. Aug.
 4 ——— day, or lily asphodel, yel. and tawny red, June
 1 ——— daffodil, or autumnal narcissus, yellow, September
 1 ——— *atamasco* amaryllis, carnation coloured, July
 3 ——— *Guernsey* scarlet, and *belladonna* purple, Sept.
 3 ——— *pancratium* common, and Illyrian, wh. Aug. July
Martagons, see *lily* above
Meadow saffron, see *colchicum*
 2 *Moly*, (flowering garlick) yel. wh. purp. and red, June
 4 ——— *magicum*, *victoralis*, and *descendens*, pur. July
 3 *Narcissus*, poet's daffodil, variety in cup, wh. May
 3 ——— peerleis, or two coloured, wh. and yel. April
 3 ——— *polyanthus*, or *multiflorus*, ditto
 2 ——— late flowering, yellow cup, white, August
 2 ——— hoop petticoat, &c. see *daffodil*
 2 *Orchis*, perennial, purples, reds and white, June, *d.*
 2 ——— biennial, bee, or gnat orchis, red, June, *d.*
Ornithogalum, see star of Bethlehem
 1 *Orobis*, tuberous, or wood pea, red flower, May
 ——— fibrous rooted, see last list
 4 *Pæony*, com. sing. doub, reds. pur. black, white, May
 4 ——— Constantinople, large flower, blood red, June
 4 ——— Portugal sweet-scented, deep red, May
 3 ——— small narrow leaved, red flowered, May
 3 ——— dwarf, with a white flower, May
 2 *Pasque flower*, or *Pulsatilla*, bl. red and wh. April
 2 ——— *Siberian*, or *alpine* yellow, April
Pilewort, see *ranunculus ficaria*
 2 *Ranunculus*, plantain leaved Alpine, white, April
 2 ——— grass leaved Pyrenean, straw col. May
 3 ——— grandiflorous, or oriental great yel. May
 1 ——— *ficaria*, or *pilewort*, double yellow, April
 2 ——— *Turkey*, or turban, red, scar. yel. black, May
 1 ——— *Persian*, a great variety, fine colours, May
Ranunculus,

- Ranunculus*, see *crowfoot*, last list
- 2 *Saxifrage*, granulous rooted, double white, May
- 1 *Snow-drop*, single, semi-double and double, white, Feb.
- 3 ——— great, spring, summer and autumn sorts
- 4 *Spider-wort*, favoy, (*Bruno's lily*) and others, wh. June, m.
- 4 ——— Virginia, (*tradescants*) blue, pur. &c. ditto
- 4 *Squill*, or common-sea-onion, white flower, June, d.
- 4 *Star of Bethlehem*, pyramidal Portugal, white, June
- 4 ——— Arabian, or Alexandrian lily, ditto
- 1 ——— common wild, greenish white, May
- 1 ——— ditto, with yellow flower, April
- 3 *Tooth-wort*, bulbiferous, seven lobed, purple, June
- 4 *Tuberoſe*, single and double flowered, white, July
- 4 *Tulip*, double, a variety, yel. and red striped, &c. June
- 4 ——— parrot, or hooked-leaved, ditto, June
- 4 ——— *Turkey* sorts, striped, great variety, May
- 2 ——— ditto, early dwarfs, a variety, April
- 2 ——— wild European, small yellow flower, April

* * The propagation of flowers in this list, is generally by *offsets*, or pieces of roots, having an eye, or bud, to it. Most of them may be raised also from *seed*; but this is a tedious method, and not ordinarily practised, except by curious florists. See page 284.

Some of this list, as most of the *bulbous* and *tubercous* roots, may be kept out of ground a long time, others a shorter; (see page 286) but those denominated *fleshy* roots, must either be planted immediately, or at least in a few days. It is common to them all to be taken out of ground for removal, as soon as their leaves decay, the roots then being in a state of *rest*, which is naturally longer, or shorter, in different plants; and if they stay in the ground till new fibres are shot, they are always removed with damage, if not death.

OBSERVATIONS ON PARTICULAR FLOWERS.

Albucā is too tender a bulb to endure much wet and frost, and therefore is usually planted in pots, for putting under shelter (as in a frame, &c.) in winter; but may be protected in the open ground, by covering with a glass, or garden-pot, towards the end of autumn, to

keep the roots dry; and before sharp frosts come, covering round with litter. By such a practice, several sorts of tender things that die down to the ground, may be preserved abroad.

Anemone, the garden (in contradistinction to the wood) we have in great variety of very fine sorts, divided generally into two kinds; i. e. narrow and broad leaved; the latter is the hardier. The full doubles only are esteemed choice flowers; but the semi-doubles, and singles, are showy enough for ordinary borders. See 290, 293. The *single*, or *poppy* anemonies, (so called from their form) frequently blow as early as February, or sooner: and thus become valuable, for decorating the ground at so dreary a season. The wood kinds bear large flowers; and are very useful ornaments for the borders of *shrubberies*, &c. at an early season, for which reason, they should be planted in the most frequented shady places.

Colchicum, or meadow saffron, flowers about *Michaelmas*, and may be kept out of ground from *May* (or decay of the leaf) to *Mid-August*. It is a remarkable property of this flower, (not however peculiar to it alone) that it makes its appearance before the leaves, which grow all winter and spring. The *colchicums* are pretty plants for the end of the flowery season, (*October*) which makes them estimable objects near the house, where they may be often seen. The flower sometimes called *spring colchicum*, is the *bulbocodium*, which see.

Cyclamen, the sorts flowering in winter (*Persian*) are too tender for open culture; but close under a warm wall, with occasional protection of a *hand-glass*, they have succeeded. A culture of this nature is rather to be attempted, as housing (except in places where they have much air) does not suit them; the roots often moulding and rotting when kept close. The colours of the *Persian* sorts are red, purple and white. Let them have a light, and deeply dug dry soil, not too much

much water, and none at all after the leaves begin to decay; for the roots then ceasing to act, would suffer by absorbing much wet, the leaves not performing their office of drawing it up, and discharging it. This observation applies to all bulbs and tubers, (in a degree) though few are so liable to rot as these.

Fritillary is of several colours, plain, chequered and spotted, white, purple, black, red, and yellow. The kinds are broad and narrow leaved; and there is a large double sort, a tall *Persian*, (three feet high) and a dwarf *Persian*, about half size, both having deep purple flowers.

Jenquil, or *rush-leaved daffodil*, has been always justly admired for a very neat sweet flower; but we do not so often meet with it, as might be expected. The single kinds are the most fragrant, and the large double is scentless. It is proper always to *pot* some, in order to bring them into the house when in flower, for their agreeable perfume.

Iris, the four first sorts rather prefer a shady moist situation; but will grow any where, and are commonly planted in odd spare corners of ground.

Ixias are, for the most part, *green-house* and *stove* plants; but these two sorts are found hardy enough to do ordinarily in open borders, in a light dry soil, and warm situation, a little protection being afforded them in severe weather.

Lily is a very ornamental and hardy flower in all its varieties, encreasing abundantly, and needing only to be removed every three or four years, for the purpose of taking away the offsets, and renewing the soil for a superior blow. The *whites* will not keep out of ground above one month, but the *orange* for several. The *white* will flower tolerably in shade, but the *orange* much better; and as it is a gay flower, it serves well to enliven plantations. The *martagons* are generally not nice as to soil and situation; but the *scarlet* and *yellow* sorts, and *striped lily*, should have a light dry soil.

soil, and sun. The *single white lilies* are very sweet; but the doubles are inodorous, as is the case with some other flowers, the fragrance arising from the *stamina* and *antheræ*, which are often smothered by numerous petals. The *Atamasco*, *Guernsey*, *belladonna*, and *pancratium lilies*, are tender, and should have a warm, or a good *auricula* soil, a full sunny border, and well sheltered situation; protect also from much wet in cold seasons, and afford security from frost. These are very elegant and noble flowers, and the *Guernsey lily* is equal to, if not beyond, any plant in the flowery creation: This is, however, the tenderest of the four: then the *belladonna*, and *pancratium lily*, or *sea daffodil*; the *atamasco* is the hardiest. All of them are usually potted for removing into shelter; but they may be managed (see *albuca*) so as to do abroad, except in the more northern and bleak parts of this island: They blow much the finer in open ground, (all things going on well) the roots having a free scope to draw nourishment, &c.

Orchis is rather difficult of culture: It likes a dry barren soil, and the roots should be taken up (from the places it grows wild) just as the leaves decay after flowering; and with a ball of earth about them, as then the chance of succeeding is much greater. Upon removal, let them be planted directly, and remain in their places for years.

Pæony, the single kinds are showy, but the doubles are nobly ornamental. Let this flower have room, as it will spread (when in full sized bunches) a yard round: and let it be planted out of the way of the full sun, and of much wind, that the flowers may continue. It need not be removed for many years, and will grow in any soil and situation, even among trees, which adapts it for *shrubberies*, &c. The sorts are divided into *male* and *female*; and the former, having lost its flower, produces pods, containing rich crimson grains, interspersed with black berries, that look very pretty when burst; and may be gathered as soon, or rather just

just before they open, brought into the house, and put in vials, &c. as curiosities. Let this root be removed early in *September*, or at least before the month is out, before new fibres are formed to the knobs of the roots.

Pilewort, (the double) prefers a shady moist situation; and is a pretty wild plant, though an humble trailer. It is called sometimes the *lesser celandine*, and also *figwort* erroneously.

Ranunculus, in all its sorts, is very ornamental; but the *Persian* kinds are beautiful, and of infinite variety. This flower is surely left too much to the culture of professed *florists*; for why should not every garden be adorned with it, seeing, that a little care, and not much skill is necessary in the management: it is hardy and encreases freely. See pages 285, 288.

Saxifrage roots of the double sorts are like so many small peas, and should be planted five or six together, in order to form a full tuft of its flowers, which are full and white like a stock. The stems, being slender, will need the support of a light stick, which it is best to fix in the middle at the time of planting, as putting one in afterwards might injure the roots. All solid rooted plants are liable to be hurt by pushing in a stick too near for tying to; more care should be taken in the business than usually is: The practice of placing a stick at the time of planting is best, because it may then be fixed close; and it serves to show where the roots are, that they may not be disturbed before they appear above ground. This *saxifrage* is usually and properly potted, though it does very well in borders, and makes a good appearance.

Spider-wort thrives best in shade and moisture.

Star of Bethlehem, the two last sorts, are proper for the edges of borders in plantations; and the pyramidal sort is a proper flower to *pot*, mixing with others very ornamentally: The two first should have a light dry soil, and are somewhat tender.

Squill

Squill will need a little protection from hard frosts; but is sufficiently ornamental to reward the trouble.

Tooth-wort thrives best in shade and moisture.

Tuberoſe, there is a dwarf stalked; and a variegated leaf sort of, but they are not so worthy of cultivation as the common single and double; of which two the single is preferable, as it blows better, and is more fragrant. See the end of this section.

Tulip (the *Turkey*) is classed into two sorts; the taller, called *ſerotines*, or late blowers; and the shorter, *præcoces*, or early blowers; some have made another distinction, *medias*, but it is not necessary. The plain tulips (as they generally are when they first blow from seed) are called *whole blowers*, or *breeders*; and according as they *break* into other colours, stripes, and variegations, (after transplantations) are denominated and classed into *baguettes*, *byblœmens*, *verports*, and *bizarres*. The dwarf sorts blow early, as *March* and *April*, (the *duke van tol* earlier) allow them therefore a warm border and dry soil, to preserve them from frost and wet, which they are rather impatient of. These are often *potted* and *forced* on a hot-bed, &c. or brought forward by water-glasses, in a warm room; but an increase of offsets, is only to be expected from open ground culture, and even there these early sorts do it sparingly. Take them up every year to remove the offsets, and renew the soil; and keep each sort separate, and plant them so, for then they will blow together, and be all of one height. There are about fifty of the early sorts; but the number of choice *fancy* tulips is more than eight hundred.

* * * * *

THE following articles are detached as most conveniently inserted here:

Auricula is increased by parting the roots, or slipping rooted offsets from them; but offsets without roots

roots will sometimes strike, if well managed, by setting them in a good soil, (in pots best) where they have but little sun, and keeping them cool by occasional watering. When the roots are divided, (in August) let it be with a sharp knife; and cutting off any cankered part, shorten also their ends, and let not the top part of the root be too long.

The soil for auriculas should be a good fresh light loamy maiden one, to which is added one third of wood pile, or willow earth, one of sea, or any sharp, or drift sand; and a quantity, equal to the whole, of rotted cow dung, or in lieu of this, horse dung. This mixture should be well incorporated, at least a year before, by frequent turning over, which ought to be repeated once a month without fail.

In winter some protection is necessary; but auriculas are not very impatient of frost, which rarely hurts them if dry. Do not follow the custom of some persons, who lay the pots on their sides in winter to keep them dry, and to cover with straw, &c. For a short time about Christmas it may be allowed; but soon after, as they begin to stir in the shoot, it gives the bud a twist, if they remain long in this posture. The best way to guard from snow, wet, and severe frost, is either by frames, or plunging under a south wall. Place a bit of tile at the bottom to keep out worms; and if the soil is moist, lay some drift sand, or fine ashes round their sides, and over the tops.

Dress the pots towards the end of January, for then the plants begin to push for flower, and must be attended to, and assisted. Strip off dead leaves. Take as much of the top mould off as can be, without disturbing, or bruising the roots; and fill up with the compost, a little pressed down. If the pots are dry from the shelter afforded them, give a little soft water in mild weather, about ten in the morning, and fail not to water duly, as the plants push forward.

Auriculas

Auriculas *in blow* should be protected from rain, wind, and sun, and their stems supported by little neat slender formed sticks, or strait ones, and tied with thread; and when *out of blow*, should be set out of the sun, but not under trees.

Shift or transplant auriculas every *second* year, and that as soon as they are out of blow; those, however, that produce many offsets, or are luxuriant growers, may be shifted every year. The more common practice is to move all in *August*.

To *raise* auriculas from the seed, in *February*, fill boxes, or pots, with fine sifted middling compost; smooth the top perfectly level; scatter the seeds evenly, and cover not more than the thickness of a shilling. Set the pots, &c. on tiles, or boards, under a warm wall, and keep the surface moist. It is a good way to mix the seed with a like quantity (or a little more) of *fine* wood ashes; and to lay some small pieces of *furze*, or light *thorns* over. Remove them (as *weather* dictates) to shelter, or protect them from cutting wind, much frost, or heavy rain, &c. and by *May* expect them to appear, when take the *furze* off, and cover with a net; let them have only the *morning sun*, keep them moist, and when they have got six leaves, prick them out three inches asunder, in boxes, or pots; and early in the next spring, plant them at six inches asunder, and protect from wet and frost.

Carnation is usually propagated by *layers*, (sometimes by *pipings* or *cuttings*, as *pinks*) about *Midsummer*, or as soon after in the season as they will admit of it, by their length and strength, and the work is thus: Strip off the leaves from the lower part of the shoot; at the middle of it, close below the joint, cut it half through by an upward direction, with a thin, narrow, sharp knife, and continue the slit exactly up the middle from half to three fourths of an inch; peg the shoot down into the earth (being before *well* loosened) as low as it will bear bending, setting the layer upright.

This

This business must be done with a careful hand, lest the layer should snap off. Now, or rather before, cut off the ends of the longest of the top leaves, that the worms may not draw them in, and disturb the layer. The soil (*fine and good*) may be raised about the layers as occasion requires. *Water* them to set the earth close, and always keep it *cool*. In six weeks, or two months, they will be rooted, fit for *transplanting*; cut them from the old plant (at the peg) with a sharp knife, and take them up carefully, that their very tender roots may not be broken off, keeping a little mould about them, if possible: but plant them not deep, as they are then liable to decay.

The *soil* proper for carnations, is a hazelly, or sandy loam, procured from a pasture, by a spit of about eight inches depth, the turf being well broke, frequently turned, and laid so long together, as to be nearly consumed; then add a little *lime*, (or not) and one third, or one fourth, of very rotten dung, (*cows* best) and let this be well mixed, till *thoroughly* incorporated, which will be some months first; then screen it, or sift through a coarse sieve. The soil for carnations must be *rich*; but yet *dung* is found so injurious to carnations, that some florists depend upon a good fresh soil alone; carnations are also (except in summer) impatient of much wet. See to them in the *winter* and give pots of them protection from great snows and frost, by frames, or mats on hoops, set rather high. *Turf ashes*, or those of any vegetable, may be mixed with a fresh maiden soil, but not too freely for a *compost*: A *small* quantity of fine *soot*, or *wood ashes*, may be also used. Dress Pots of carnations in *March*, as directed for the auricula.

To *raise* carnations from *seed*, sow thin in boxes, or pots, (in a soil as above) early in *April*, and let them have only the morning sun. When advanced a little in growth, (as about *Midsummer*) take the first opportunity of moist weather, and prick them out at
three

three or four inches asunder, into open ground, and give a little water. If dry weather, contrive to *shade* them about ten days, or a fortnight, with mats hooped over, which remove in shady, or showery weather. When they have grown here a month, or six weeks, (or before *August* is out) plant them in a bed, where they are to blow, at nine or ten inches distance, and shade, if necessary. Protect them from much wet in winter, and in hard frost, by mats, or hoops, set high. See *January*. Seed is best sowed from good seedling plants, rather than those long propagated from layers, &c.

Geranium, African, (Pelargonium) is propagated by seeds and cuttings. The former produces the most free growing plants; but as luxuriance is not desirable in things confined to pots, (as *geraniums* must be) and as the propagation by cuttings is so easy and expeditious, it is the mode of culture that generally prevails. The young plants from cuttings are also hardier than those from seed. If raised from seed, sow in *April*, in a light and good soil, warm border, and under a hand-glass, keeping the earth somewhat moist; but it is best to make use of a gentle *hot-bed*, giving plenty of air to the plants, when they appear, which on natural ground will be five or six weeks in coming up, and on a moderate heat about three. If raised from cuttings, use shoots of the last year's growth, strait and short jointed. Plant them in a fine rich soil, two or three inches, or at the most four deep, and eight or nine inches asunder, or less, if more convenient. Or the rule may be, to plant the shorter cuttings in two thirds of their length, and the longer one half; but it is an error to put them in the ground so deep as some people do. Those raised on a little heat will be sufficiently rooted in two months to transplant into small pots; (shortening the longer roots a little) and those in the cold ground will be ready in three months, and sometimes less. A *hand-glass* set over *geranium* cuttings (or any other) will greatly fa-

cilitate the business, as is directed for *pinks*. If the cuttings are *raw*, or *long*, take the upper part off down to an eye. In general it may be proper to keep the cuttings out of ground a day, or two; but the soft and succulent ones should by all means, in order to dry the ends, and so heal the wound, which, if put directly in the ground, might decay and rot.

The proper *season* for planting is from *Mid-May* to *Mid-July*: a little earlier, or later, may however do: Some chuse to forward them on *heat*, in *March* and *April*; but they must not be kept close. It is advisable to take cuttings from towards the top of plants, in order to keep them down; but where they can be best spared (as to the form of the plant) is the general rule. Pot them in *August* or *September*, according to the time the cuttings were put in: The former time is much the best.

The *management* of geraniums is, to keep them from *frost*, and as much as may be from *harsh winds*, particularly in the *spring*; as after being housed all winter, they are then tender, and far less able to bear unkind weather, than in *autumn*; when having been used to the external air, and the colder weather coming on by degrees, they are seldom hurt much, but by absolute frost. In the *spring*, they must be brought to bear air by degrees, and the more carefully, according as the *winter* has occasioned them to be more or less deprived of the external air, being let in upon them. When the weather is mild in *April*, let them be taken out in the day, (if convenient) and put in on nights; and venture them not wholly abroad till *Mid-May*, or after. In the *summer*, they should be placed in *shelter* and *shade*; but not under trees, or any roof: The morning sun is all they should have, for more of it dries the mould in the pots too fast, and fades the flowers. They will want frequent *watering*, see page 277. They may take up their *summer* residence about *Mid-May*, (as directed) but the *season* must

must govern; and it will not do to bring them out in a harsh one, which would pinch up the leaves, and deprive them of their beauty. If put close under a south wall for a week or two at first, it would be proper; or an awning of mats might be used for nights.

Shifting geraniums should generally take place once a year, from smaller pots into others *one* size bigger: This may be in the first mild weather in *April*, or *May*. Loosen, and take off the top mould down to the roots, (without damaging them) then turn the pot up, and shake it out. If the roots adhere to the sides of the pot, give the edge a tap upon the knee, or something else, and a little pressure at the hole, with the thumb, or finger, at the same time, which will help to discharge it. Pare off the matted roots round the sides and bottom, with a *sharp* knife; and plant it in a fresh pot, (or the same again may sometimes do) putting in as much fine light rich mould, or compost, at the bottom, as will raise the ball of earth, which is about the roots, within an inch of the top of the pot; then fill round the sides, putting the mould by little and little in, and pressing it down gently, make all level to the top within half an inch; finally, give a watering that shall soak to the bottom, and sprinkle some dry mould over: All shifted plants should be kept rather in the *shade* for a week or two till rooted.

If any *sticks* are to the plants, they must be taken away first, and replaced (if necessary) again before watering, or rather the next day, if the plants will stand up without. This may be a proper time to *trim* off all dangling, or too crowding shoots; but if *cuttings* are wanted for encrease, they should not be *trimmed* till these are to be planted. At any rate, dead leaves, or unsightly crooked parts, should be discharged, and *symmetry*, in a snug round head, provided for. Geraniums are free growers, and it is always advisable to take off *some* shoots to keep them down and in form. A few of the plants, that most need it (as least

handiome or healthy) should be *severely* cut, for a late blow, which generally proves a *fine* one in consequence. A judicious regular use of neat slender *sticks* is of much advantage to *geraniums*, or other potted plants.

What has been said of *geraniums*, applies to all those EXOTICS, called *Greenhouse Plants*, in the management of which, it is a material thing not to shift into too large pots, as the roots run directly to the out-sides, and so would be too hastily brought to require the biggest pots. Another thing is, to take off some of the top soil, not only as directed in *spring*, but once or twice in the *summer*; and always before housing in *autumn*, and replacing it with a rich *compost*, as one of almost all rotten *cow dung*, which being *black*, is the most suitable to the eye, and it is cool and nourishing.

It is material to *neatness*, and the end of *ornament*, (for which plants are chiefly potted) that the *pots* should be occasionally washed, or scoured, and by no means suffered to get mouldy. This is a point so little attended to, that we sometimes see a beautiful plant in a very disgusting habitation. It is equally offensive, and injurious, to suffer the surface earth to get mossy, or caked hard by the necessary waterings; to prevent which, often stir it a little depth, and lay it smooth, which makes all look creditable.

Pinks are sometimes *layered*, or more usually propagated by *cuttings*, or *pipings*, about *Midsummer*; and may be also by *slips*, set in *March*, *April*, or *May*, with, or without roots, four inches asunder. *Cuttings* should be young strong shoots of three or four inches long, taken off just below a joint; from which stripping the lower leaves, and cutting the top ones short, plant them in a fine good soil, about two inches asunder, and in depth full half of their length. They will strike root, so as to be fit to move, in seven or eight weeks, with a little earth about their roots; or may be left to an early time in the spring: but where this is designed, they will be best six inches asunder. They

may

may be either put in *pots*, or *borders*, where they are to blow, or rather into a nursery-bed, to grow a year at six inches distance. *Pipings* are obtained by drawing the heads of the young shoots out of their sockets, of the length of cuttings. In both methods, push the shoots carefully into the earth, gently press the mould about them, and give a watering; shade also from much sun. They will strike more certainly, and much sooner by being covered *close* with a *hand-glass*, as much as possible air-tight. They must be kept cool, by occasional watering; but when under glass, they will not need so much watering or shading, or may do without any; for though the inclosed air is warmer, it is always more humid, which refreshes the cuttings with answerable supply for their support; and it is this moisture and warmth that facilitates the growth. When they appear to be growing, the glasses must be raised, and in a short time removed. To raise pinks from seed, follow the directions given for *carnations*.

Polyanthus is propagated by parting the roots in autumn, or (for new varieties) by seed sown and managed (nearly) as directed for *auriculas*: But as this flower is not so delicate in the cultivation, it may be sown in borders, where there is only the morning sun, any time from *August* to *April*; and as soon as the plants are at all big enough to prick out, set them four inches asunder; and sometime in *August*, plant at six inches, where they are to remain for their first blow; which should be attended to, in order to mark the best flowers, dividing these into two sorts, prime and midling; and the rest may be either planted into ordinary ground in plantations, &c. or cast away: There will be but few real good ones in a great many; but the culture of this plant is so easy, that it is worth while to try for them. Some sow in *pots*, and *boxes*, in *December*, placing them in the sun, and housing them in severe weather; and when the plants appear, set them in an *east* aspect, lest much sun destroy the young plants;

early in autumn, or spring, is however better: The seed may be covered a little less than a quarter of an inch. Both seeds and seedling plants should have occasional watering, as moisture suits them.

A *compost* for the polyanthus is simply a light loam, (as the first spit from the pasture rotted down with the turf) and about one fourth part cow dung or wood pile earth. If the loam is strong, a little drift sand amongst it will be proper. The polyanthus grows any where, but a cool soil and situation suits it best; and some *compost*, as the above, with an *east border*, is necessary in order to a capital blow.

Tuberose is blown finest in a *hot-house*; but if planted in pots, and plunged at the back of a *hot-bed* frame, it succeeds very well. This will be best done about *Mid-April*, as sooner they are apt to get too tall before they can safely be exposed abroad. Provide a good *fresh* light earth, and use no dung, except a little rich and dungy, to lay an inch below the bottom of the bulb; fill the pots only three parts, and place the root only half way, or a little more, in it. Let the mould be somewhat moist, but give no water till the shoot appears, and then moderately; at which time, fill up the pot, just to cover the bulb, which should be but barely hid, when the pot is full. The best shaped pots for bulbous roots is, when the bottoms are as wide as the top; and the size for the *tuberose* should be those of eight or nine inches diameter at top, according as the bottom is for width; for the more space below, the less is required above.

As the *shoots* advance in growth, the more air must be given; and as freely as possible on mild days, shutting close on cold nights, and almost so on moderate ones. When they get too high for the frames, and the season is forward, with kind weather, they may be plunged in the ground, close under a warm wall; and a covering of mat contrived to protect them a while on nights, or may do if left to take their chance. If the

the weather is foul, they may be housed in a good window, for a week or a fortnight, and then put in the ground as directed above. Here let them remain, giving occasional *watering*, (and freely in dry weather) till in flower; when the *house* (allowing them light and sun) will be their proper residence, for their fine powerful scent, and to protect the blow, that it may the longer continue. In their flowering state, they will want much water.

The *heat* on which this flower is forwarded, should be *moderate*, otherwise it will run up too fast. If planted under a *south wall* in *May*, covering the root about an inch, and guarding against much wet till it is growing, it will do for a late blow: A *hand-glass* of course would be serviceable, both to assist it in shooting, and shelter it from unkind weather; but close covering is as much as possible to be avoided. Fresh *roots* are imported every year;—the double never flowers twice with us, but the single may, if kept in a dry warm room.

SECTION XX.

A CALENDAR.

THE general work of gardening has been pretty fully spoken of, in the parts concerning the *formation, cultivation, and management* of a garden, *propagation, &c.* The *particular* culture of *esculents, herbs, fruits, and flowers*, has been treated in the sections appropriated to each. It therefore remains to give *here* little more than short *hints*, by way of assisting recollection, and to make proper *references* to the pages, where *farther instructions* may be found of those that need, or chuse to consult them.

What is said concerning *seeds* and *sowing*, page 57 to 64, must be attended to. It need only be farther observed, that as to the *season* proper to do the several works of gardening, it is not the same (exactly) every where, as *soil* and *situation* make a difference.—The *time* mentioned in this *calendar* is, that which the author judges will be found most *generally* right in the midland counties, as the extremes of *north* and *south* make a great difference in this business.

The *work* of gardening being very multifarious, it would be a practice not unworthy, even the skilful gardener, to make it a *rule*, once a week, to consider what *is* to be done the following week; and to make *memorandums* accordingly, numbering them in the *order* he would have them performed.—Thus he would never be at a loss, what to set himself, or his labourers about, and the mortification of omissions, or appearance

ance of neglect, would be avoided: This *calendar*, it is presumed, will be found a ready and sufficient assistant upon such an occasion, the author having endeavoured to make it plain, comprehensive, and as concise as possible.

* * * * *

JANUARY.

LET every thing be done now, that the weather and circumstances will permit, (if not absolutely necessary) in order to lessen the work of *next month*, which when it happens to be an open season, is a very important one in the way of gardening, in which the loss of a single fine day is of consequence.

MISCELLANEOUS WORK.

Frost protect things from, as they need it.
Earth-up roots bared or disturbed by frost.
Dung for *hot-beds* should be duly attended to, 171.
Manure and *compost* heaps turn frequently over.
Espaliers, garden frames, and such things, rectify.
Tools, make, repair, sharpen and brighten, 276.
Fruit, *onions*, &c. the stores of, look over, 263, 229.
Brush-wood, prepare ready for sticking peas, &c. 231.
Planting, trench and prepare ground for, 28, 95, &c.
New-planted trees, protect and tie to stakes, 89, 100.
Old trees dig about, and dress with some manure, 45.
Prune espalier trees, standards and shrubs, 160, 166.
Moss, clear trees and shrubs from, in moist weather.
Vermin set traps for, kill bull-finches, &c.
Webs and *nests* of caterpillars, slugs, snails, destroy.
Beds and *borders*, weed, stir the ground, and rake.
Cauliflowers and *lettuces* in frames, &c. attend, 214, 227.
Endive, tie up, when dry, to blanch; and protect it, 220.

R 5

Cions,

Gions, procure for grafting, except apples, 82, 85.

Hot-beds, prepare for, or make, cucumbers, &c. 169, 177.

Drain ground, scour ditches, plash hedges, &c.

SOW

Cucumbers, 176. *Melons*, 192. *Peas* 230. *Beans*, 206. *Spinach*, 243. *Radishes*, 238. *Lettuces*, 226. *Cress*, 249. *Mustard*, 253. *Carrots*, 212. The five last on *heat*; to which may be added, *rape* and *lap-lettuce*, 228, as fallading; towards the end of the month, however, they may be sown on warm borders, the fallading being under close hand-glasses.

PLANT

Mint on *heat*, 253. *Cabbages* at distances as 211. *Trees* and *shrubs* of the deciduous kinds, *grape vines*, *currants*, *gooseberries*, and *raspberries*, if mild weather, so that the ground will work loose. Layers may be removed; but rather prepare the ground now for planting them next month, 95, &c.

PROPAGATE

Trees and *shrubs* by suckers, layers, cuttings, 64, &c.

FLOWERS.

Pots of, see *December*, *tulips*, *anemonies*, *ranunculuses*, *hyacinths*, *narcissuses*, &c. above ground protect, 289. *Bulbous* and *tuberous* roots now plant for a late blow, or in the next month; but preserve them if choice forts from much wet, lest they rot, 286. *Auriculas*, if disturbed by frost, dress and protect, 358. *Carnations*, and all hardy plants, in pots, protect, but give them as much *air* and *sun* as may be, 361. *Flowering shrubs* may be planted, if open weather, covering the roots well; but it is better done next month, getting the ground ready now, 107, &c.

NURSERY.

NURSERY.

Vermin, guard against in time, on seed beds, &c. 72.
Dig beds for *sowing*, next month tree seeds, &c. 71.
Protect seedling trees (particular *exotics*) from frost.
Plant, or *transplant*, hardy things, cover the roots.
Prepare ground for next month's *planting* out seedlings,
 or stocks for *grafting* another year, 72.

* * * * *

FEBRUARY.

WHEN the ground can be conveniently worked, this is a very *busy* month, and no time must be lost, nor hands spared, that every thing may be done in its proper, or earliest season.

The *last* week is the principal, in which *many* things are to be done, and some *full* crops sown: The *skilful* gardener is properly aware of this, but ordinarily the month of *February* is too much neglected.

MISCELLANEOUS WORK.

Ground, prepare for *planting* and *sowing*, &c. 45.
Borders should be stirred, dug, or dressed, 29, 138.
Gravel walks, weed, moss, put in order, and roll firm, 54.
Turf, prepare the ground for laying, by levelling.
Grafs-plats and *walks*, clean up, cut the edges, 54.
Composts and *manures*, turn over, and break well.
Hot-beds, attend regularly, and no neglect, 179, &c.
Stable dung, for hot-beds, now manage properly, 171.
Cauliflowers and *lettuces*, see to, as in the last month.
Earth-up and *protect* plants from frost and wind, 49.
Stick-peas, neatly, when about five inches high, 231.
Weed and *thin* crops, as winter onions, radishes, &c. 49.
Endive, attend, to blanch and ridge when quite dry, 220.

Vermin and insects, see to, as mice, snails, slugs, &c. 233.
Birds, chiefly bull-finches, do much mischief now.
Prune wall and other trees, but first grape vines, 129.
Moss and *canker* clean trees of, moist weather.
Gions for grafting provide, 82, and use them, 83, &c.
Edgings of thirft, a good time to make or repair, 55.

SOW

Cucumbers, 178, 219. *Melons*, 192, 228. *Peas*, small, 231, large, 232. *Beans*, the broad sorts, or the *mazagans*, if wanted early, 206. *Radishes* on heat, or not, 239. *Lettuces* on heat, or not, 227. *Small sallading* on heat, or on a warm border under glass, 249. *Cabbages*, the sugar loaf sorts, 211; or if *early* ones are wanted, sow the *Yorkshire* sort on heat, 212. *Savoys*, 241. *Onions*, 228. *Leeks*, 225. *Parsley*, 254. *Spinach*, 243. *Carrots* on heat, or not, 212. *Parsneps*, 230. *Celery*, 216. *Kidney-beans* on heat, 224. *Turneps* on heat, 244. *Cauliflowers* on heat, 214.

PLANT

Cucumbers, 179, 184. *Melons*, 195. *Cauliflowers*, 215. *Cabbages*, 211. *Horse-radish*, 221. *Garlick*, 221. *Recombole*, 255. *Shalots*, 243. *Gives*, 248. *Mint* on heat, 253. *Potatoes*, early sorts, on heat, and warm borders, 235. *Vines*, wall, *espalier*, and *standard* fruit trees, *forest* trees, and *deciduous shrubs*, 30, 95, 107, 112.

PROPAGATE

Trees and *shrubs* by grafting, 83, by suckers, layers, and cuttings, 64. Sow kernels, stones, and seeds of fruit, &c. on fine well broke earth, providing *exotics* a little heat, 71.

FLOWERS.

FLOWERS.

See last month. *Biennials* and *perennials* plant, 283.
Shrubs protect, &c. 119: prune and dig about, 111.
Carnations, &c. housed, bring abroad mild days.
Auriculas, pots dress and regularly water, 358.
Auricula and *polyanthus* seed should be sown now, 359.
Bulbs and *tubers*, plant soon and pot some, 286.
Water pots, particularly woody and hardy plants.
Annuals, sow about last week, 281; some in pots, 282.

NURSERY.

See last month. Sow hardy trees and shrubs, 71.
 Transplant hardy seedlings of last year, and stocks
 for grafting next year, or the following, 72.

* * * * *

MARCH.

THE *first* week in this, like the last in *February*, is very valuable to the good gardener, and *must* be made the best use of by those who would have things tolerably in season, and well furnished for the summer. It is therefore proper to have no regard to the charge of *necessary* assistance. Nature now waits for us, let us not neglect to attend upon her: This is the universal seed-time. See *management*, page 56.

MISCELLANEOUS WORK.

Order and *neatness* are now principal objects, 54.
Vacant ground, dig and apply manure where wanted.
Borders dress, by weeding, digging, &c. see last month.
Gravel walks, clean, roll, re-lay, or make new, 54.
Edgings of *thrift* and *box*, if mild, repair, or make, 55.
Grass

Grass plats and walks make, cleanse, mow, cut edges, 54.
Herb-beds weed and dress, see article *balm*, 246.
Weeding in general should be begun in time, 49.
Asparagus beds, weed, carefully fork, and dress, 202.
Ditto, in dry weather, water as recommended, 205.
Strawberry beds, weed, stir the mould, and dress, 165.
Artichokes, dress, &c. towards the end of the month, 202.
Composts heaps, turn, screen, or sift, for pots, &c.
Vermin, *insects*, and destructive *birds*, see to, 233.
Earth-up peas, beans, and whatever else needs it, 49.
Stick peas in time, and stop them, or not, 231, 233.
Stakes to trees, &c. see that they are fast, 100.
Graft now, but apples towards end of the month, 81.
Prune wall trees without delay, but first vines, 148.
Blossoms of choice wall-tree fruit, defend, 145.
Prune, dig, dress, shrubberies and plantations, 108.
Hot-beds carefully attend, 180, and make new ones, 183.
Dung for future hot-beds, manage in worked heaps, 170.
Cauliflowers, &c. under glass, give air freely to, 214.
Stir mould about ditto, and also *lettuces*, 215, 227.
Prick out cauliflowers, cabbages, *lettuces*, &c.
Orchards, dung, dress, *prune*, or smoak them, 43.

SOW.

See last month, *cauliflowers*, *savoys*, *onions*, &c. *Ra-*
disbes, the spindle rooted, 239. *Lettuces* of sorts, 226.
Small sallads, 249. In the first week:—*Alexan-*
ders, 201. *Asparagus*, 203. *Beets*, 208. *Ham-*
burgh parsley, 230. *Salsafy*, 240. *Scorzonera*, 241.
Skirrets, 243. *Finochio*, 250. *Red cabbage*, 212.
Turnep radishes, 239. Second week: *Turneps* on
 heat, and in open ground, 245; and *kidney-bean* on
 heat, or a warm border, 223. Last week: *Brocoli*
 of the early purple autumn sort, 210. *Nasturtiums*,
 253. *Capficums*, 248. *Love apples*, 259. *Herbs*
 of all sorts, 246, &c. *Strawberries*, particularly
alpines, 77.

PLANT.

PLANT

Trees and shrubs, 30, 95, 107, 112. *Herbs* in rooted slips or cuttings, 246, &c. *Strawberries*, 38. *Asparagus*, 204. *Artichokes*, 201. *Potatoes* and *Jerusalem artichokes*, 222. *Lettuces*, 226. *Cauliflowers*, 214. *Other things* as last month.

PROPAGATE

Trees and shrubs, by grafting, 83; by suckers, offsets, layers, and cuttings, 64. *Herbaceous plants*, by parting roots, &c. 285.

FLOWERS.

The *hardy* kinds of flowers in pots that have been housed, should be inured by degrees to the weather, and soon left out on nights: None should remain under cover more than necessary.

Pot desirable hardy plants for moveable ornaments, when in flower; but not too many, 278, 282.

Auriculas, if not before, dress, and regularly water, 358.

Carnations dress as directed for auriculas, 358.

Tulips, hyacinths, &c. of the best sorts, protect, 289.

Water potted plants duly as the weather is, 277.

Sow annuals, 273. *Biennials*, 282. *Perennials*, 283.

Take up, remove offsets, and divide fibrous rooted perennial flowers about middle of the month, 285.

Layers of carnations, pinks, &c. take up carefully soon, and pot or plant with earth to the roots, 360.

Seedlings of ditto, and other things, plant out.

Anemonies, ranunculuses, and bulbs, may be put in (east border) the first week, to blow late, 286, 287, &c.

Box, thrift, daisies, pinks, &c. plant soon for edgings.

NUR-

NURSERY.

Remove litter, weed, stir the ground, and rake neatly. Prune into form, shorten the leader, &c. to make a head, &c. 69.

Grafts of last year cut to a few eyes; behead as at 94.

Transplant and sow as last month, and do it quickly.

Exotics, or tender plants, sow on a gentle hot-bed, 71.

Water give in a dry time to seeds, seedlings, cuttings, and newly planted things; but not over much, 52.

* * * * *

APRIL.

IF by any means the proper early spring cropping of the ground has been prevented, make no *delay* to finish, and to get the garden into a complete state of cultivation. This month may be mild enough to invite us abroad, to traverse the walks, and view nature in her *spring attire*, "*all blooming and benevolent.*" Let nothing therefore be met with that appears slovenly, or disgusting. See page 54.

MISCELLANEOUS WORK.

Borders, &c. weed, stir, rake, and clean up neatly, 49.

Quarters also weed, particularly beds of onions.

Gravel walks and grafts plats, put in order, roll, &c. 54.

Turf, get, lay, but water frequently if dry weather.

Edgings of box, &c. make, repair, trim, or cut low, 55.

Watering omit not where necessary in a dry time, 50.

Pruning finish all soon; head down young trees, 130.

Grafts, see to, that the claying remains safe on, 84.

Blossoms of wall fruits, protect in bad weather, 145.

Dung for hot-beds, collect and take care of, 171.

Hot-beds, make in due time for fruiting cucumbers, 183.

Hot-beds,

Hot-beds, for melons, tender annuals, &c. 194, 273, 279.
Asparagus, strawberries, artichokes, see last month.
Cauliflowers, stir mould about, and earth up, 214.
Peas, earth up, and stick before they droop, 231.
Beans in blossom, crop the tops and earth up firmly, 207.
Weed and thin all seedling crops, by hand or hoe, 49.
Prick out celery and plants of every kind as fit, 50.
Potatoes, early sort, earth up, protect from frost, 235.
Lettuces, tie up close, and stir the ground about, 227.
Cabbages, earth up, and also tie up forward ones, 211.
Caterpillars, snails and slugs, search often after.

SOW

As soon as possible, what was omitted last month, or the preceding. *Then*, Salsafy, 240. *Scorzonera*, 241. *Pumpions* and gourds, 237. *Late Savoys*, 241; and *Cauliflowers*, 215. *Beurcole*, 209. *Brocoli*, 210. *Brussels sprouts*, 210. *Chou Milan*, 218. *Char-dons*, 218. *Kidney beans*, 223. *Cabbages*, chiefly the large sugar-loaf for coleworts, 211, 219. *Herbs*, culinary and medicinal, 246, &c. *Nasturtiums* cold ground, 253. *Basil* on heat, 247.
Succession crops, of cucumbers and melons, for hand-glassies, &c. 188, 198, 200. *Peas*, large and small. *Beans*, the broad sorts. *Savoys*, carrots, turneps, celery, lettuces, finocchio, spinach, and radishes cool ground, small sallading, weekly, on a south border, onions to draw young, 61.

PLANT

Strawberries yet, but alpines succeed best so late, 38. *Asparagus*, 204. *Artichokes*, 201. *Lettuces*, 226. *Chives*, garlick, rombole and shalots, first week, see February. *Cabbages*, early and late, 211. *Cauliflowers*, 215. *Kidney beans* that have been raised on heat, 224. *Potatoes* for a full crop, 234. *Herbs* in rooted

rooted slips, 246, &c. *Trees* and *shrubs* immediately, and do it in the best manner, water, cover the roots, and stake the stems, 97, 107.

PROPAGATE

Trees and *shrubs*, by grafting, layers, cuttings, and sowing, which may yet be performed, 64, 71, 79. *Herbs*, by slips, or cuttings, in a good soil, and a shady situation, but not under trees, 246, &c.

FLOWERS.

Sow, in the first week, (if not done before) *annuals*, 273, 279, 280. *Biennials*, 282. *Perennials*, 283. *Plant*, or prick out, *annuals* as the sorts require, 274. *Biennials* and *perennials* of late blowers, may yet be transplanted into borders or pots, giving an immediate watering, and shading a few days from sun, 283. *Carnation layers*, taking them up carefully with a scoop trowel, 276. *Pinks*, the same. *Tuberose*, 357. *Tulips*, *ranunculuses*, *anemonies*, &c. of choice sorts, protect in severe cutting winds, 288. *Auriculas* in bloom, shelter from rain, wind, sun, and support the stems by neat forked sticks, 359. *Pots of flowers*, shift, and dress, tie up, water, &c. 363. *Crocus* leaves tie up, do not cut them off.

NURSERY.

Weed, water, stir the soil, rake neatly, and clean up, 69. Transplant (yet) seedlings of trees and shrubs; the *evergreen* sorts it is now a good time for, 72. Sow (if not done before) the seeds of forest trees, flowering shrubs and evergreens: but keep them cool, by watering, as every thing should be, that is sown or transplanted late in the spring: Yet they must not be kept soaked with wet, 71.

MAY.

* * * * *

MAY.

LET this *charming* month be ushered in with due respect, by the gardens being in excellent order; to which end let no help be spared, when the *gardener* is not competent to perform the work himself: It is often too much for the most industrious man.

We now gather vegetables that have stood the *winter*, and been the care of many months, with some of the products of *spring* also; and it is the hope and fruition of reward that sweetens labour: All the senses are gratified at this season.

— The softening air is balm;
And every sense and every heart is joy!

THOMSON.

MISCELLANEOUS WORK.

Neatness must be pursued, stir the ground, rake, &c. 49.

Gravel walks and *grass plats*, keep in good order, 54.

Weeds, destroy every where, by the hand or hoe, 49, 54.

Water, if dry weather, new planted trees, shrubs and flowers, strawberries, cauliflowers, &c. 40, 51.

Thin all sorts of seedling crops enough, and in time, 49.

Prick out lettuces, celery, brocoli, boorcole, cauliflowers, favoys, cabbages, leeks, &c. 50.

Earth up potatoes, peas, beans, cabbages, celery, &c. 49.

Tie up forward lettuces, and early cabbages, 211, 227.

Cucumber plants, give air, water, shade, train, 185, &c.

Hot-beds, make for cucumbers and melons, 173, 189, 199.

Regulate wall-trees, vines, and prune figs, 132, 149, 151.

Grafts attend to, and repair the claying, &c. 84.

Thin fruit that is superabundant on wall-trees, 146.

Beans, top, when in blossom, and earth them up, 207.

SOW

SOW

Nasturtiums, herbs, and tall *kidney beans*, first week, 253, *Endive*, 220, and *purslane*, 255, second week, *Cauliflowers* about the middle, 215. *Celery*, 222. *Pumpions* and *gourds*, 237.

Succession crops of *cucumbers* for picklers, 190. *Melons* for mangoes, 200. *Dwarf kidney beans*, *celery*, *radishes*, *turneps*, *cabbages*, *savoys*, *brocoli*, *peas*, *beans*, *finocchio*, *salsafy*, *scorzonera*, *chardons*, *spinach*, *lettuces*, *radishes*, and *small sallading*, chiefly first week.

PLANT

Kidney beans that have been forwarded on heat, 223. *Cucumber* and *melons*, second crop, 188, 198. Forward *gourds*, 237. *Lettuces*, 226. *Cauliflowers*, *savoys*, *cabbages*, *coleworts*, 217, 219. *Celery*, if forward, in trenches, 217. *Artichokes*, 201. *Potatoes* 234. *Nasturtiums*, 253. *Capficums*, 248. *Love-apples*, 259, and *basil*, 247, towards the end of the month. *Herbs*, by parted roots, 246, &c. *Trees* and *shrubs* may yet succeed under good management, 101.

PROPAGATE

Herbs, culinary and medicinal, by slips and cuttings, but rather the latter. For *sage* it is now the best time, 246, &c. See *Flowers*, article *slips*, &c.

FLOWERS.

Sow *annuals* of all sorts for a late blow. *Scarlet bean*, sow as a flower to run up pales, &c. 273, &c. *Thin seedlings* soon, that they may not be weak, 273. *Prick out*, or plant, the *tender annuals* in new hot-beds, pots, &c. as directed, 274, 276, 278. *Hot-beds* of flowers, manage, as to air, water, &c. 280. *Biennials*

Biennials and *perennials*, thin in time, and water them; also prick out any that are forward enough; they may yet be sown, 282, 283.

Auriculas out of flower, remove out of the sun, 359.

Tuberoses, pot on heat, or under a south wall, 357.

Tulips, *anemonies*, &c. in beds and in flower, protect, 288.

Bulbs and *tubers* of dying spring flowers, take up, 285.

Slips and *cuttings* of *pinks*, double *wall-flowers*, double *sweet williams*, double *scarlet lynchnis*, double *rockets*, and *lychnidea*, plant as soon as the young shoots are forward enough, 364, 333, 343, 346, 344.

Geraniums, plant cuttings of last year's shoots, 361.

Water seed-beds lightly and moderately in a dry time, 280; and pots of flowers regularly, 277.

Air, give to housed plants freely, as the season is.

Dress, *shift*, and *tie up*, flowers and shrubs in pots, 363.

Pot some ten week stocks, *mignonette*, &c. 276, 278.

Support spindling carnations, &c. and weak shrubs, 55.

Stir the surface mould of pots of flowers, 362.

NURSERY.

Weed, *water*, occasionally *shade* tender seedlings, 69.

Seed-beds, keep cool, for without moisture, germination cannot be expected; but give water lightly, so as not to cake the ground, 51.

* * * * *

JUNE.

In this month the gardener begins to find some *pause* to his labour. The ground is now fully cropped, as to principals, and the *chief* business is to see that the various plants, according to their different ages of growth, do not stand in need of the necessary assistance of *culture*, or good management. Particularly attend to trained trees, &c. to regulate them before they get into disorder:—This do once a week.

MISCELLANEOUS WORK.

Weed diligently, particularly close crops, 49.
Stir the ground between open crops, and rake, 49.
Gravel walks, grass plats, and edgings, see to, 55.
Water, let it be duly applied where necessary, 51.
Thin by hoe, or hand, all sorts of crops fully, 49.
Prick out things, celery, endive, savoys, brocoli, &c. 50.
Cauliflowers shewing head, break leaves over, 216.
Earth up high peas, beans, &c. see the last month.
Tie up the leaves of garlick and rocombole, 221.
Blanch lettuce, white beet, and finocchio, 208, 227, 250.
Stick peas, and *top beans* when in full flower, 231.
Cucumbers, attend duly, to air, water, train, &c. 185.
Melons, ditto, prune, lay tile under the fruit, 195, &c.
Prune wall-trees, vines and espaliers, 129, 149, 160.
Blighted trees, pull off curled leaves, in time, and water them frequently with an engine, 52.
Grafts that have clearly taken, unclay and unbind, 84.
Bud, or inoculate, at Midsummer, or soon after, 89.
Asparagus, finish cutting before Midsummer, 206.
Herbs for drying, gather as directed, page 246.
Seeds also attend to, and gather if any ripe, 59.

SOW

Cucumbers, last crop, for picklers may do in cold ground, if a good soil and sunny situation, 190.
Pumpions and *gourds* may succeed as ditto, 237.
Turnep radishes of all sorts, but chiefly the large white and black Spanish for autumn use, in cool ground, 239. *Endive* for a principal crop, 220.
Succession crops of celery, brocoli, peas, broad beans, kidney beans, radishes, lettuces, small sallading, purslane, turneps, cabbages, carrots, finocchio, and spinach.

PLANT

Cucumbers, 189. *Melons*. 199. *Pumpions* and *gourds*, 237. *Nasturtiums*, 253. *Capsicums*, 248. *Love-apples*,

apples, 259. *Leeks*, 225. *Celery*, 216. *Cauliflowers*, *brocoli*, *boorcole*, *savoys*, *cabbages*, and such like greens, at two and a half feet, or rather more for *cauliflowers*; less for *brocoli*, and *cabbages* if a small sort. Seedling *herbs*, 246, &c. *Moist weather* at this season is very advantageous for pricking out, or planting, and it must not be neglected when it occurs: Water at the time of planting, and afterwards as the weather may require.

PROPAGATE

Herbs by slips, or cuttings, in a good soil, and as cool a situation as may be, not under trees, 246, &c.

Layer the young shoots of *roses*, *evergreens*, or any shrub, or tree, that does not readily strike root from older wood, or send forth suckers; but make the soil rich first with compost, or short dung, and water the layers frequently, 66.

Cuttings, or the young shoots of some woody plants, may be made to strike root, see page 312.

About the second week is the best time to plant cuttings of *myrtles*, which should be young wood and short, about two inches. Keep them cool.

FLOWERS.

Annuals, tender sorts, pot and plant out into the borders; they will require a good soil, water, and a little shade at first, and chuse rainy or cloudy weather for the work, 276.

Pots of flowers set where they have only the morning sun, but not under trees, or any roof, except for ornament a while, when in blow, 278.

Trim, from dead parts, &c. perennials and biennials, 56.

Carnations, and other spindling flowers, support, 55.

Geraniums, plant cuttings of last year's shoots, 361.

Water pots of flowers duly, borders occasionally, 277.

Prick out seedlings of biennial and perennial flowers, particularly *carnations*, 360. *Pinks*, 364. *Auriculas*, 359, and *polyanthuses*, 365, into shady places.

Plant slips, &c. of wall-flowers, &c. see last month.

Layer carnations, pinks, and sweet williams, 359.

Auriculas should be set in shade, except for seed, 359.

Spring bulbs, the leaves being decayed, take up, 285.

Autumnal bulbs, plant at the end of the month, 286.

NURSERY.

Weed, *water*, *stir* the soil, *rake* it, and clean up, 69.

Shade the tender seedlings, and late planted things, 51.

Seed beds, spring sown, keep moist, and earthed up; in very hot weather, an awning of mats is advantageous on days. Seedlings in pots or boxes move into shade, but not under trees.

Thin young plants from growing thick and weak, 49.

* * * * *

JULY.

THOUGH in this month there is a cessation from the great bustle, and more laborious works of gardening, yet "*its many cares*" still find employment for the willing hand; and most assuredly a good success in the end will not be attained without perseverance in the means. Let nothing therefore be omitted, that may tend to crown the gardener's credit with a continued production of *fine vegetables*, *fruits*, and *flowers*. The garden now abundantly gratifies the *sight*, the *taste*, the *smell*; and those who have the opportunity to enjoy it, should be grateful to God—and the gardener.

MISCELLANEOUS WORK.

Prepare vacant ground for cropping, and let as little of it as possible lay rude and unproductive.

Weeds

Weed, stir the borders, hoe between crops, &c. 54.
Water cauliflowers, and whatever else may need it, 51.
Gravel walks, grass plats, and edgings, keep in order, 54.
Box, yew, &c. should be clipped after, or in rain.
Earth peas, broad and kid. beans, celery, cabbages, &c.
Blanch white-beet, lettuce, and finocchio, 208, 227, 250.
Stick peas, and running kidney beans in time, 231, 225.
Thin all small crops to their due distances, 49.
Prick out celery, endive, brocoli, cabbages, &c. 50.
Seeds, gather as they ripen, lest the best are lost, 59.
Herbs for drying, gather as soon as in flower, 246.
Take up garlick, rocambole, shalots, 221, 225, 243.
Cucumbers and melons, attend, water, train, &c. 185, 195.
Pumpions and gourds, train, and water plentifully, 237.
Artichokes, take off small side heads in time, 202.
Wall-trees, &c. regulate, and occasionally prune, 132.
Vines stop, and take off the little side shoots, 150.
Thin wall trees, &c. of superabundant fruit, 146, 156.
Bud-graff, or inoculate, fruit trees, roses, &c. 89.
Blighted wall-trees, attend to, see the last month.
Strawberry Runners take off; except the first, 77.
Kidney Beans, runners, train, and water if dry, 225.
Ants, flies, and wasps, take by vials of sugar water.

SOW

Brocoli, first week, cool ground a little, for late use, 210.
Endive, principal winter crop, in open ground, 220.
Peas and beans, early sorts, may yet sow, 208, 232.
Kidney beans, dwarfs, first week, south border, 224.
Carrots, a few, cool ground, first week, and water both seeds and roots if dry weather, 212.
Radishes of any kind, but chiefly the large black and white Spanish turnep sorts, water, 240.
Lettuces, the hardier, or winter sorts, open ground, 226.
Spinach, first week, the round in cool ground, and in the last week the prickly seeded, 243.
Onions, a few Welch, and Strasburgh, second week, 228.

S

Coleworts,

Coleworts, first week for winter, last week spring, 219.
Turneps, any sort, both early and late in the month, 244.

PLANT

Celery at six inches; *Leeks* the same or more. *Endive*,
lettuces, *coleworts*, at a foot. *Cabbages*, *savoys*, *brocoli*,
boorcole, and *cauliflowers*, at two feet, or a little more
 in a rich soil, particularly the latter: Give *water* at
 planting, and two or three times after, if not much
 rain should fall.

PROPAGATE

Herbs, lavender, rosemary, sage, propagate yet, by cut-
 tings, or slips, occasionally watering, 246, &c.
Trees and *shrubs*, by laying shoots of the present
 year; i. e. of those that are not apt to strike from
 older wood. Slips and cuttings of some sorts, may
 strike, by the help of a *band-glass*, 66, 312.

FLOWERS.

Stir the flower borders, and rake them neatly, 54.
Pots of flowers, set in shade, and regularly water, 278.
Carnations and double *sweet-williams*, layer, 359, 333.
Pinks, plant slips, cuttings, pipings, or layer, 364.
Geraniums, double *lychnis*, *lychnideas*, double *wall-flowers*,
Rockets, plant cuttings, or slips, 344, 333, 361, 346.
Succulent plants (as *aloes*) may now be set abroad.
Annuals, plant out tender sorts into borders, 286.
Ditto, quick blowers may still be sown, 334.
Biennials, thin seed beds of, prick out, water, &c. 283.
Perennials, ditto, particularly *auriculas*, 359. *Carna-*
tions, 361. *Pinks*, 364, and *polyanthus*, 365.
Larkspurs, thin and pull up all the single ones, 335.
Stocks, pull up most of the single ones, 332.
Seeds, gather very regularly as they ripen, 56, 58.
Bulbous and *tuberous* roots take up in due time, 285.
Bulbs,

Bulbs of autumn, as *saffron crocus*, plant now, 292.
Trim plants and shrubs, straggling branches, &c. 56.
Support weak flowers and shrubs by proper ties, 55.
Minionette, sow in pots to flower in winter.

NURSERY.

Weed, water, shade, young tender seedlings, &c. 69.
Prune away suckers, or shoots from stems, &c. particularly those that have been grafted, 93, 94.
Thin seedlings, shade by a mat, &c. new planted ones, but not from night dews, water, &c. 73, 51.

* * * * *

AUGUST.

IN this month (as in some measure before) the gardener anticipates products of the *future* year, and sows various vegetables in *autumn* to stand the *winter*, for *spring* and *summer* use; so that, in this, and other respects, *August* is in truth an important season, as will be seen by the work directed to be done. The *times* for the several *sowings* should be pretty exactly observed in order to success.

MISCELLANEOUS WORK.

Weed, water, stir borders, rake and clean up, 50, 54.
Walks and *grass* plats, attend, roll, mow, sweep, 54.
Thin by hoe, or hand, young crops, in dry weather, 49.
Water ditto, as also new sown beds, regularly.
Prick out celery, and other things as winter greens, 50.
Earth up peas, beans, kidney beans, celery, greens, &c. 49.
Blanch endive, beet, chardon, finocchio, 220, 208, 218.
Dig, or use a strong hoe, between rows of plants, 49.
Vacant ground, clean, and prepare for use, 46, 47.

Stick peat, and take up the haulm of old crops, 231.
Stake tall plants which are standing for seed, 59.
Seed plants support, and gather seed as it ripens, 59.
Herbs, gather for drying just when in flower, 246.
Onions, press down the leaves to the ground, 229.
Shalots, *garlick*, *rocombale*, take up, 249, 227, 261.
Grape vines, prune, nail, and keep in due order, 150.
Wall-trees, *espaliers*, climbing shrubs, &c. regulate, 133.
Insects about wall-trees, attend to. See blight, June.
Wasps, &c. take in trees, by vials of sugar water.
Budding may yet be performed, first week, 89.
Buds that have taken of former work, unbind, 93.
Net fruit trees up, to keep off birds, and also fingers.
Gather fruit before the sun has shone long upon it.
Mat up currants and gooseberries for late fruit, 164.
Strawberries, clear from runners, weeds, leaves, 165.
Cucumbers, *pumpions*, and *gourds*, train, water, &c.
Pickling cucumbers should be gathered twice a week.
Melons, prune, train, water sparingly, 195.

SOW

Coleworts in the first week, 219; *cabbages* in the second, 211; *cauliflowers* in the third, 214. *Onions*, Welch, a full crop, and a few *Strasburgh* a warm border, first week, 228. *Lettuces*, at the beginning, middle, and end of the month, 226. *Small sallading*, in a shady place, and water it, 249. *Chervel* and *American cress*, second week, 248, 250. *Radish*, both spindle and round rooted, 245. *Kidney beans*, dwarf, on a warm border, first week, 225. *Spinach*, round first week, prickly third week; the former at broad cast, and the latter rather in drills, 243. *Turneps*, first or second week, 244. *Carrots*, ditto, 214. *Herbs* first week, 246, &c.

PLANT

Without delay, leeks, celery, lettuces, endive, cabbages, coleworts, late brocoli, and boorcole, distance as last month

month, though every thing planted late, may be so much the nigher, generally speaking one third. *Strawberries* and *herbs*, culinary and medicinal, towards the end of the month, that they may be well rooted before winter, 39, 246, &c.

PROPAGATE

Trees and *shrubs*, by laying *young shoots* in fine rich earth, and keep the ground cool about them, 69.

FLOWERS.

Decayed parts, take off, trim, and tie to sticks, 56, 57.
Shrubs, ditto, thin a little, and prune off suckers, 111.
Edgings, or *hedges* of box, yew, &c. may be cut now.
Water potted flowers regularly, also others, 277.
Ditto all new planted things, and shade them, 275.
Annuals, hardy, sow towards end of the month, 287.
Minionette, plant in pots, to flower in winter.
Biennials and *perennials*, plant, last week, 289, 291.
Saxifrage pyramidal, and double plant in pots, 355.
Geraniums, raised from cuttings, (or seed) pot soon.
Ditto, pots of, &c. stir, or fresh earth, 364.
Auriculas and *polyanthus*, transplant, part, &c. 359, 365.
Carnations yet layer; transplant early layers, 359.
Pinks from early cuttings may be fit to move, 364.
Sweet Williams layer, or transplant if rooted, 333.
Bulbous roots, as lilies, &c. take up for planting, 285.
Bulbous offsets, replant them without delay, 286.
Bulbs of autumn flowers, plant in first week; see *atamasco*, *Guernsey*, &c. *Lillies*, 362.
Succulent plants, shift (best season) first week, 364.

NURSERY.

Prune suckers, side stem shoots, straggling and luxuriant ones from the head; stir the ground, weed, water, thin seedlings, plant, shade, &c. 69, 51.

* * * * *

SEPTEMBER.

GARDENS begin now to fail of their wonted beauty, and therefore dying flowers, all litter, and every thing unsightly, admonish the *gardener* to trim his plants, and clean the ground frequently, that all may be pretty if not gay. An attention of this sort, stirring the ground, and raking it, will give an air of *freshness* and *culture* highly pleasing and creditable.

MISCELLANEOUS WORK.

See beginning of last month, *twelve* first articles.
Shrubs free from suckers, dig about, &c. 111.
Prepare ground for planting trees and shrubs, 103.
Turf, lay as a good time, beat, roll, and water.
Gather fruits as they ripen, and store them well, 262.
Grapes, tie fine ripe bunches up in gauze or crape.
Figs, keep in close training to ripen the fruit, 151.
Cucumbers cover on nights to prevent the spot.
Pickling cucumbers, gather before they get spotted.
Melons carefully protect from cold and wet, 200.
Cauliflowers, prick out, put some on slight heat, 214.
Ditto, *Michaelmas* crop, if dry weather, water often.
Lettuces, prick out, at 4 or 5 inches, south border.
Herb-beds should be cleared and dressed this month, 246.
Nasturtiums gather before ripe for pickling, 253.
Onions, being dry and hard, take in, sort, &c. 253.
Garlick, *shalots*, and *rocambole*, tie up, and store, 221.
Seeds, such as are well dried, dress and put up, 56, 59.
Beans, late, top them as soon as in flower, 207.

SOW

Spinach, *turneps*, *Welch onions* (thick) and *endive*, first week, for late spring use. Radishes of all sorts, but chiefly

chiefly the large black turnep, 240. • *Small sallading*, every ten days, warm borders, or under glass, 250. *Corn sallad*, 250. *Chervil*, 248, and *forrel*, 257.

PLANT

At distances as before, *coleworts*, *endive*, *cabbages*, *savoy*, *brocoli*, *boorcole*, *Brussels*, *sprouts*, *chou-milan*, and *celery*; also *lettuces* on dry warm ground, 226. *Herbs*, pot and medicinal, from parted roots, or offsets, 246, &c. *Shalots*, *garlick*, *rocamboles*, 249, 227, 261. *Strawberries*, any time this month, (the sooner the better) dress old beds and plants, 38, 77, 165. *Shrubs*, begin to plant towards the end, but let not the roots be long out of ground, 106. *Currants*, *gooseberries*, and *raspberries*, may be planted last week, 31, 38.

PROPAGATE

Trees and *shrubs*, by laying young shoots, and at the end of the month, cuttings may be planted, as of *gooseberries*, *currants*, *laurels*, *honeysuckles*, &c. 66.

FLOWERS.

Remove dead ones, *trim* the decaying, tie up, &c. 55, 56. *Annuals*, sow some of the hardy sorts, first week, 281. *Biennials*, plant out, reserving a few for spring, 283. *Perennials*, ditto, also take up, and part old roots, 283. *Pinks*, from cuttings, &c. (if well rooted) plant out; also *carnations*, *sweet-williams*, &c. from layers, 360. *Geraniums*, from cuttings, or seed, plant without delay, in small pots, shortening the roots, &c. 362. *Auriculas*, dress, shift, slip, place in shade, 359. *Polyanthus*, plant, part roots, or sow the seed, 365. *Bulbs* of autumn flowers, plant yet in first week, see last month; and those of spring in last week, as *crocuses*, early *tulips*, common *anemonies*, &c. 286.

Lilies and other scaly bulbous roots, plant soon, 287.

Offsets from bulbs must be planted immediately, 287.

Beds for bulbous and tuberous roots, prepare, 293.

Edgings of box, thrift, or pinks, plant, cut, or repair.

Pots of flowers bring from shady situations to more sunny ones; *exotics*, put in time under some degree of shelter, according to their nature; the *succulent plants* are impatient of wet, and cold, as also *variegated geraniums*; take them in soon; but give plenty of mild air.

Minionette in pots for winter, place under a south wall.

NURSERY.

Weed, stir the soil, clean up, and water, if dry weather.

Dig about young trees, at the end of this, or the beginning of next month, as directed, 79.

Prepare ground for planting, next month. Stocks and seedlings, and sowing seeds of trees and shrubs, 71, &c. *Cherry Stones* may now be sown. *Evergreen* seedlings should be planted out, last week, and watered, if a dry time, 72.



OCTOBER.

THIS is the *chief* month of the year for planting trees, shrubs, &c. No part of it should be lost, in either working the ground *well* for the purpose, or putting in the plants without delay: Early planting, if the ground is fit, is of much consequence. *Esculents* are to have their winter quarters provided them as soon as possible in the month, as at the end of it the weather is often bad.

Now the virtues of *industry* and *perseverance* will be tried to keep the grounds clean from falling leaves, &c. The garden, however, ought yet to be a source
of

of pleasure, and the weather is often still inviting abroad: Surmount impediments.

MISCELLANEOUS WORK.

Dig, dung, trench, and drain, ground thoroughly, 46.
Prepare for planting, lay open the holes for trees, 97.
Rake leaves off borders and quarters, sweep, &c. 54.
Gravel walks, and grass plats, cleanse, roll, mow, 54.
Turf will be well laid now, but do the work soon.
Caterpillars, destroy, for they do mischief rapidly.
Thin, by hoe, spinach, &c. small crops, by hand, 49.
Prick out cabbages for winter or spring planting, 211.
Hoe between rows of cabbages, &c. and earth up, 49.
Blanch celery and finocchio by earthing; endive, beet, and chardons, by tying, 217, 256, 221, 208, 218.
Cauliflowers that are heading, break leaves over, 216.
Asparagus beds and seedlings, dress, second week, 205.
Strawberries, if not before, dress out of hand, 165.
Raspberries, dress, and plant coleworts between, 165.
Seeds gather regularly and lay up thoroughly dry, 59.
Fruits, gather carefully, and house well, 262, 274.
Dig up, and store clean and dry, carrots, 214; potatoes, 237; parsneps, 230; Jerusalem artichokes, 222.
Dress about currant and gooseberry bushes, by digging in a little manure, cutting the ends of the roots.
Herb-beds should always be dressed at this time, 246.
Vines, wall-trees, &c. regulate, if not fully prune, 143.
Grapes bagged in gauze, see to, lest they get mouldy.
Shrub, &c. dig about, and put in good order, 111.

SOW

Beans, mazagan, third and fourth week, 207. Peas, ditto, early sorts, 231. Lettuces, first week, warm border, 226. Small sallading, warm border, under glass, 249. Radishes, early purple short top, or early Sandwich, may succeed, south aspect, 240. Carrots, a few early horn, warm border, may be tried, 214.

PLANT

Anjou cabbage and *boorcole* yet plant. *Brocoli*, a few plants, first week, for latest spring use. *Coleworts*, first week, 219. *Cabbages*, any time, chusing strong plants, 211. *Endive*, first week, warm border, 220. *Celery*, first week, open ground, for late spring use, 217. *Cauliflowers*, settle soon, 214. *Lettuces*, 226. *Shalots*, garlick, *rocambale*, (dry ground) 243, 221, 255. *Strawberries*, first week, 39. *Wall-trees*, and other *shrubs*, any time, but evergreens, first week. *Herbs*, rooted sorts, 246, &c. *Mint* on a little heat, protecting it, 253. *Layers* of trees and shrubs made last year; being rooted, take up well, and plant immediately, 97, &c.

PROPAGATE

Trees and *shrubs*, by *suckers*, 64. By *layers* of the young wood, roses, jasmines, bay, laurel, *laurustinus*, vines, figs, filberts, codlins, mulberries, &c. See lists of trees and shrubs, 66. By *cuttings* or *slips*, gooseberries, currants, berberry, jasmines, honey-suckles, laurels, box, &c. 66. See lists, sect. 19.

FLOWERS.

Look over, trim, tie up, gather ripe seeds, &c. 55, 56, 59. *Geraniums*, and other tender plants, dress, house, 362. *Auriculas* and *carnations* in pots, preserve from much wet, and set in sunny situations, 358, 359. *Seeds*, or *seedlings*, in pots, or boxes, ditto, and shelter from the cutting N. E. winds, 359. *Annuals*, self-sown, &c. may be taken up with a little earth, and planted where wanted, 281. *Biennials*, plant out, but leave a few for spring, 282. *Perennials*, ditto, also slip or divide old roots, 285. *Bulbous* or *tuberous*, and *fleshy* roots of spring and summer flowers, plant, but the earliest first, 285.

Minionette,

Minionette, pots of, house, or put under glass.
Saxifrage, pyramidal and double, plant in pots, 356.
Edging of dwarf flowers, box, &c. plant, or repair.

NURSERY.

Stir, and fork in a little short well rotted manure, 70.
Dig ground to be planted, a week before it is wanted.
Sow seeds of trees, &c. and guard against mice, &c. 72, 79.
Transplant seedlings designed for stocks, &c. 72.
Suckers of plums, cuttings of quinces, codlin, &c. 74.
Prune, or dress up, young trees and shrubs from suckers, straggling shoots, and form the heads, 73.
Dig about ditto for purposes as directed, 79.

* * * * *

NOVEMBER.

THOUGH the *last* be the better month for planting, yet this is more commonly the time adopted: It cannot be now proper to delay it. The leaves not being all off should be no obstacle.

The object of *pleasure* should not yet be given up; and let the gardener do all in his power to be cleanly and neat, giving his grounds that proof of good culture, which is so essential to his credit.

Anticipate *winter*, so as to put all in order, and furnish the ground early; provide against *frost*, lest it come unawares.

MISCELLANEOUS WORK.

Wet, if it stands any where, let it be drained off.

Vacant ground, dig, manure, trench, or at least hoe, 46.

Clear away dead plants, leaves, weeds, and all litter, 54.

Weed borders and crops, as spinach, winter onions, &c.

Grass plats, cleanse, roll, mow, and lay turf, but soon.

W O G

S 6

Gravel

Gravel walks, weed, clean, and roll hard after rain, 54.
Composts, collect, and mix well the materials for them.
Cucumber and melon earth, store in dry time, 178, 195.

Earth up peas, beans, celery, cauliflowers, &c. 49.

Blanch endive, 221, chardons, 218, and finocchio, 250.

Dig up carrots, potatoes, Jerusalem artichokes, and parsneps, but not all the latter, 230. Also when in prospect of frost, some red beet, scorzonera, falfify, skirrets, Hamburgh parsley, leeks, turnep-radishes, and horse-radish, all of them to be preserved a while in a cellar, or longer in dry sand. See *cauliflowers* farther on.

Lettuces in frames, under hand-glasses, &c. attend, 226.

Artichokes, cut, see to, when in prospect of frost, 202.

Asparagus, dress beds of, and also seedlings soon, 205.

Raspberries, dress in the first week; see last month.

Hot-beds may be used for small sallading, 249, mint, 253, lettuces, 227, or for radishes, 239.

Frost, consider what should be protected from it.

Fruit, latest sorts, gather in the first week; and manage that already housed, 262.

Onions, store of, look over to remove decayed ones, 229.

Seeds, dress, put up clean and dry, and keep them so.

Caterpillars on winter greens, search for in time.

Grubs about the roots of *lettuces* and search for, 227.

Shrubs, prune and dig about; fasten trained ones, 111.

Prune all trees, except figs, but cherries the first, 143.

Figs, pull off green fruit, fasten shoots, 151.

Cover the roots, and stake new planted trees, &c. 102.

Cauliflowers under glasses attend to, and those in head, break leaves over. This vegetable, and *brocoli*, may be taken up when in prospect of frost, and planted with balls of earth, or only laid in a cellar, where they will keep (perhaps) a month; but tie the leaves together at the tops with strong bafs or a hay-band before they are taken up, 216.

SOW

Small fallading and lap lettuce, under glass, warm border, or rather on a little heat, 227, 249. *Radishes*, purple short top, second week, warm border, 238. *Carrots*, early horn, 214. *Beans and peas* first week, for a principal early crop, 207, 231.

PLANT

Celery yet, 217. *Lettuces*, 226. and *cauliflowers* yet, in frames, under hand-glasses, or close under a south wall, 214. *Endive* ridged, 220. *Coleworts*, 219. *Cabbages*, 211; and all in the first week, though the latter may be later. *Mint* on heat, 253. *Wall-trees*, and others soon, 30, &c. 95, &c. *Shrubs*, deciduous, but not evergreens, 117, &c. *Strawberries*, upon necessity, but do it first week, 39.

PROPAGATE

See *last month*, by suckers, slips, division, cuttings, and layers, as roses, &c. 64, &c.

FLOWERS.

Take up dead flowers, and *tie up* those in blow, 55, 56. *Frost*, beware of, as to the care of tender flowers, 362. *Auriculas* and *carnations* in pots, protect, 359, 361. *Seedlings* in boxes, &c. place in the sun, and protect. *Pots* of hardy flowers are themselves preserved, as well as the plants, by plunging above their rims, 358. *Bulbous* and *tuberous* roots, plant and protect, 286. *Biennials* and *Perennials* hardy, plant early, 283. *Thrift*, plant or repair, as soon as may be, also *box*.

NURSERY.

See *last month*; and do *soon* what was then omitted.

Cover

Cover the roots of newly planted things and lightly all feed beds and seedlings of tender sorts, 99, 69.

* * * * *

DECEMBER.

THE garden is no longer a decorated scene; but it contains many things of *promise*, which demand attention, and which the industrious gardener will afford, agreeable to the culture that each requires.

There are still some works of *labour*; and where there is plenty of dung and frames, *hot-beds* may be made use of, and *spring* anticipated.

If this month be called *dreary*, yet still the face of nature has charms, and invites us sometimes abroad, even when covered with snow. Frost is clearly beneficial, it dries the path, it strings our nerves, exhilarates our spirits, purifies the air, and prepares the ground for future produce.

All nature feels the renovating force
Of winter, only to the thoughtless eye
In ruin seen. The frost-concocted glebe
Draws in abundant vegetable soul,
And gathers vigour for the coming year.

THOMSON.

MISCELLANEOUS WORK.

Weed crops, &c. *clean up* litter, and still be neat, 54.
Gravel walks, roll hard, if dry, against wet and frost.
Grass plats, cleanse from worm casts, sweep and roll.
Mice traps, set about peas, beans, cauliflowers, &c. 233.
Caterpillars in trees, *snails* in walls, and *slugs*, see after.
Tools, make, repair, grind, and keep bright, 276.
Seeds, look over the stock to keep them clean and dry.
Fruit and onions, examine, remove decaying, 229, 263.
Straw,

Straw, damp or musty, remove from store rooms.

Frost, guard against the ill effects of every where.

Wheat straw, useful to protect things, see radish, 238.

Vegetables, before hard frost, take up, see last month.

Artichokes, *asparagus*, and *raspberries*, (if not before) give their winter dressing to soon, 202, 205, 164.

Endive, tie up when perfectly dry, and ridge some, 220.

Earth up (dry) celery high, also cauliflowers, chardons, brocoli, savoys, cabbages, &c. pressing the mould.

Cauliflowers and *lettuces* in frames, &c. manage, 214, 226.

Planting, prepare for, and open the holes ready, 29, 97.

Vacant ground, clean, dung, rough, dig, or trench, 46.

Barrow, make use of when frost to wheel in dung, &c.

Hot-beds, see and manage the materials well for, 170.

Cucumbers may be sown in the last week, 174, 176.

Composts, make, and incorporate well by turning over.

Orchards, prune trees, dress, dig, or plough the soil, 43.

Prune wall pear trees, espaliers, and shrubs, 153, 160.

Hedges, *ditches*, and *drains*, manage as the case requires.

Drain wet from orchard, garden, nursery, &c.

Spring, have a constant eye to, and prepare things for.

SOW

Beans, 207. *Peas*, 231. *Radishes*, 238. *Carrots* may be tried as radishes. *Lettuces* ditto, under glass in a warm border. *Small sallad*, as *cress*, *mustard*, and *lap lettuce*, on a slight heat, 227, 249.

PLANT

Mint on heat, 253. *Trees* and *shrubs* of the hardy deciduous kind, in open weather, covering the roots and staking; if against a wall fasten them to it, 97, &c.

PROPAGATE

By *suckers*, *cuttings*, *layers*, &c. see *October*, 64, &c.

STIMUL

FLOWERS.

FLOWERS.

Take care of, but neither sow nor plant; yet some chuse to sow *auriculas* in this month, 359.

Covering of every kind is to be *no* closer, or longer kept on than *necessary*, for great danger arises from much nursing, when plants come to be exposed again. See last month.

Auriculas see to, and take off dead leaves, 358.

Carnations guard against mice and much wet, 361.

Pots of hardy flowers, to protect, see last month.

NURSERY.

Protect, as the weather may require: all *new planted* things, cover the roots of them well, 99.

Seedlings of tender things may be covered lightly all over, but uncover in time, 69, 73.

Frost-cracks in seedling beds, fill up with sifted mould.

Wet (much of) gives frost so great hold, that it should be particularly guarded against.

Vermin must be attended to, particularly mice, which are apt to bark, and so kill young trees, 73.

 CLOSE.

Nature attend! join every living soul,
 Beneath the spacious temple of the sky,
 In adoration join; and, ardent raise
 One general song.—

Soft roll your incense, *herbs*, and *fruits*, and *flowers*,
 In mingled clouds to HIM, whose sun exalts,
 Whose breath perfumes you, and whose pencil paints.

HINTS

HINTS

ON THE

METHOD OF MANAGING POND-FISH.

THE quantity of Fish to be supplied obviously depends upon the quantity of water, which should be divided, where it conveniently can, into five ponds; these may be distinguished by the five first figures, as, 1, 2, 3, 4, 5.

Number 5 is intended for Breeding, and should be double or treble the size of any of the other ponds. Or if this be inconvenient, there may be two marked No. 5. This pond may likewise be the most distant from the house. If the Breeding Pond should fail to answer this purpose, it will at least serve as a conservatory for Fish of small size, to be obtained elsewhere: and indeed fresh stores in any case will be found desirable. The contents of this pond in Carp and Tench, or the greatest part, should be taken out annually in September, or October, counted in braces; and such as are from five to seven inches long thrown into No. 4.

The contents of No. 4, when grown one year from the length of five or seven inches, must be put into No. 3. The contents of No. 3, having grown one year

year from No. 4, must be removed into No. 2. And in like manner the contents of No. 2, after one year, must be removed into No. 1, which is to contain only such Fish as are fit for the table. It is obvious that this pond, for safety and convenience, should be the nearest to the house.

As No. 5 is to be the largest water, so No. 1 is to be the least; the rest, of sizes between the two.

The shape of No. 1 should be oblong, for the convenience of the net, and the less disturbance of the Fish in taking out what are wanted from time to time.

A book should be kept by the Gardener, of the number and size of each kind in every pond.

Carp are fit for the table from three to seven pounds each. Tench from one pound and a half to three pounds each. Perch from three quarters of a pound to one or two pounds, &c.

It is supposed that none of the ponds have a strong current of very cold, acrid, innutritious water.

One acre of water upon a loam, clay, or marl, or any of these with a mixture of gravel, has been stated to be capable of supporting 2000 pounds weight of Fish: the number of the Fish making that weight being immaterial.

Carp and Tench breed most freely in ponds, or pits newly made. Tench likewise in almost any ponds, where cattle are admitted.

It is evident that Perch and Pike should not be admitted in any degree in No. 5; but in all the other numbers, besides their own value, they are of important service, provided that they are strictly confined to a size greatly subordinate to that of the Carp, or Tench. For they destroy not only the accidental spawn of Fish which breed, but also several Animals, whose food is the same with that of Carp and Tench, as Frogs, Newts, &c. Pike above the weight of one or two pounds must not be admitted even amongst Carp of the largest size and weight.

With

With regard to the absolute weight of Fish, which any particular pond will support, this can only be determined by observation and experience; as it depends on the different degrees of nutrition in different waters. It is said, that Carp and Tench in waters which feed well, will, before they are aged, double their weight in one year.

The third part of an acre in No. 1 would probably be sufficient for the demand of any family. For, upon the calculation above given, it would support near 700 pounds of Fish, which might be divided thus.

50 Brace of Carp, of three pounds each and upwards.

50 Brace of Tench, of two pounds each and upwards.

50 Brace of Perch, of one pound each and upwards.

That is, three Brace of Fish, weighing at least twelve pounds for the use of every week.

Allowing one acre for No. 5, one third of an acre for No. 1, and one acre and two thirds for the intervening numbers, the whole water would be three acres. Upon this calculation the stock of No. 1 at 8d. per pound, would be worth 23l. 6s. 8d. per annum, and the expence annually of changing the Fish from No. 5 to 4, &c. will not exceed 1l. 6s. 8d. So that the value of each acre would be at lowest 7l. 6s. 8d. annually.

No. 1 being supposed to be near the house, and at no great distance from the garden, if the Fish should not thrive sufficiently, which will be seen by the disproportioned size of the head, and the whiteness or paleness of the scales, they may easily be supplied with more food by loose peas from the garden, the sweeping of the granary, worms saved by the Gardener in digging, and the offal of the poultry killed for the kitchen; or by letting down the water about two feet, in the spring or summer, where there is a sufficient supply, and sowing the sides with oats, barley, rye, or wheat, very lightly raked in, and then stopping the sluice again.

In

In ponds already stocked, but not accurately regulated, it would be advisable to begin with that which has the most Pike, otherwise with No. 4, or what is intended for No. 4, and throw all the Fish under five inches length into No. 5, and the larger, according to their sizes, into the other numbers: and so on with No. 3, 2, and 1.

Store-Fish procured elsewhere, if taken in summer, should be moved in the night in clean straw, wetted occasionally after they are packed: except Perch and Pike, which can only be carried in clean pond or river water. In moving Fish from one Pond to another, they should be first put into tubs of water already prepared for them, and afterwards carried in buckets without water. In taking Pike, or Perch, great care must be observed to avoid raising mud in the water.

In Breeding Ponds all water-fowls, as Geese, Ducks, &c. should be discouraged; and Herons carefully destroyed. If any white Fish, as Roach, Dace, &c. should be found, they are to be taken out; and if there be a spare piece of water for large Pike, they should be put into it as food for the Pike.

Eels may be put with advantage into any except the Breeding Ponds, in lieu of Perch. The most easy way of taking them is by trimmers laid over night, baited with small Fish, not with worms: otherwise they may catch the Carp; or a small thief net may be baited with white Fish.

Common sewers and drains from the laundry are prejudicial to fish: so are the leaves falling from trees in great quantities. The use of grains should likewise be avoided in large quantities, as having little nutriment whilst they are thus washed by the water.

It seems better for the use of the table, as well as more humane, to kill Fish designed for food by an incision with a sharp-pointed pen-knife, or punctures made with a pin longitudinally into the brain, about half an inch or an inch, according to the size of the Fish,

Fish, above the eyes. As this produces an instantaneous effect, it would probably save the cruel operation of crimping or flaying fish while alive; as in the case of Pike and Eels.

It is obvious, that this method of regulating Fish will apply with its full effect in larger spaces of water: it will likewise apply in a considerable degree to smaller pieces: even where the change is but from a pond for the use of cattle to a single canal in a garden.

In situations near the great inland manufactures, and near the turnpike roads leading from an easy distance to the metropolis, water may be made by this kind of management, with little trouble or expence, to produce a large annual rent. See Preface.

A page or two to spare induces the Author to reprint the following Essay from the first Edition, and which was omitted in the second.

ON THE

PROFESSION OF A GARDENER.

HE who undertakes the *profession* of a gardener, takes upon himself a work of some *importance*, and which requires no small degree of *knowledge*, *ingenuity*, and *industry*, to perform *well*. There are few businesses which may not be learned in much less time than that of a gardener can possibly be.

It often happens, however, that a man who has been very little in a garden, and that only as a *labourer*, who can do little more than dig, or put out cabbage plants, will call himself a *gardener*; but he only is worthy of the name who having had much practice in the various parts of horticulture, possesses a genius and adroitness, fitting him for making experiments, and for getting through difficulties that the existing circumstances of untoward seasons, &c. may bring him into. He should possess a spirit of enquiry into the *nature* of plants and vegetation, and how far *art* (in his way) may be made successfully useful, or at least probably so. The mode of growth, the pruning, the soil, the heat, and the moisture that suits particular plants, are not to be understood without a native taste, and close application of the mind. "Gardening depends more upon the labour of the brain than of the body."

There

There are few things to be done in a *garden*, but which require a dexterity in operation, and a nicety in hitting the proper season for doing it. A *gardener* should be a sort of prophet in foreseeing what will happen under certain circumstances, and wisely cautious to provide (by the most probable means) against what *may* happen.

A man cannot be a *good gardener*, except he be thoughtful, steady, and industrious; possessing a superior degree of *moral* excellence, as well as genius and knowledge adapted to his business. He should be modest in his manners and opinions. It too often happens with those who have much practical skill, that they slight what is *written* upon subjects of their profession; which is a fastidious temper, that the man of *real* merit will hardly possess.

The knowledge of *botany* is not necessary to the business of a practical gardener, but it might be made useful to him, or at least a matter of amusement and relaxation, enabling him to be respectably communicative. Some knowledge in this way he will perhaps not content himself without, if he has any thing to do with the *green-house*, and *hot-house*, as many curious plants are admitted there.

The character of a *gardener* is here set high; but it is the *goal* of respectability at which *he* ought to aim, who presumes to call himself a *professed* one; and no doubt there are many in noblemen's and gentlemen's services, who *are* thus respectable in their abilities and conduct.

It remains for the *employer* to consider the *merits* of his gardener, and reward him accordingly. He should reflect upon the importance of his *garden* to himself, family, and friends; and how *great* difference there is between one *well*, and one *ill* managed. If the soil and situation is untoward, or the season cross, (which in *England* is very apt to try a gardener's skill and patience) he should be ready to make allowance, as
there

there is little to be done in working against nature; and to the most attentive and skilful in the art of gardening, accidents will sometimes happen, that *might* have been prevented. "In the work of a garden there is no such thing as always proceeding with certainty, and insuring success."

A *gentleman* should consider that he who furnishes him with fruits and vegetables, almost lives in the garden; and that he cannot *relax* in his duty without his neglect being *manifest*, by serious consequences following it. There is always *something* for him to do, that must be done *now*, to sow, plant, prune, dress, &c. &c. "Whoever will give himself the pains to trace a good gardener through the several stages of his employ, in all seasons of the year, will find it to be one continued circle of labour and toil."

A *gardener* is, in many respects, differently situated to the other servants about a gentleman's house, and these discriminating circumstances, are what may be said (according to general estimation) not to his advantage. A *gardener* has reason, indeed, to love his employment, as he meets with *health* and *tranquillity* in the exercise of it; but considering what he *is*, and what he *does*, in his proper capacity, he may justly claim a superior degree of estimation and reward.



FINIS.